American Perfumer AND AROMATICS

COSMETICS
TOILETRIES
SOAPS

•

PHARMACEUTICALS
AEROSOLS
FLAVORING
& ADDITIVES

•

ESSENTIAL OILS

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NOVEMBER 1957

THE MAGAZINE OF TASTE AND SCENT

Perfumery Industry . . . Page 33 • Aerosol Production . . . Page 45

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achieving distinct odor character for
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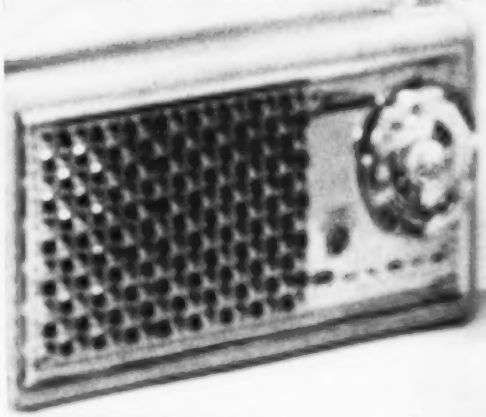

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SCOVILL Containers

PATENTS PENDING

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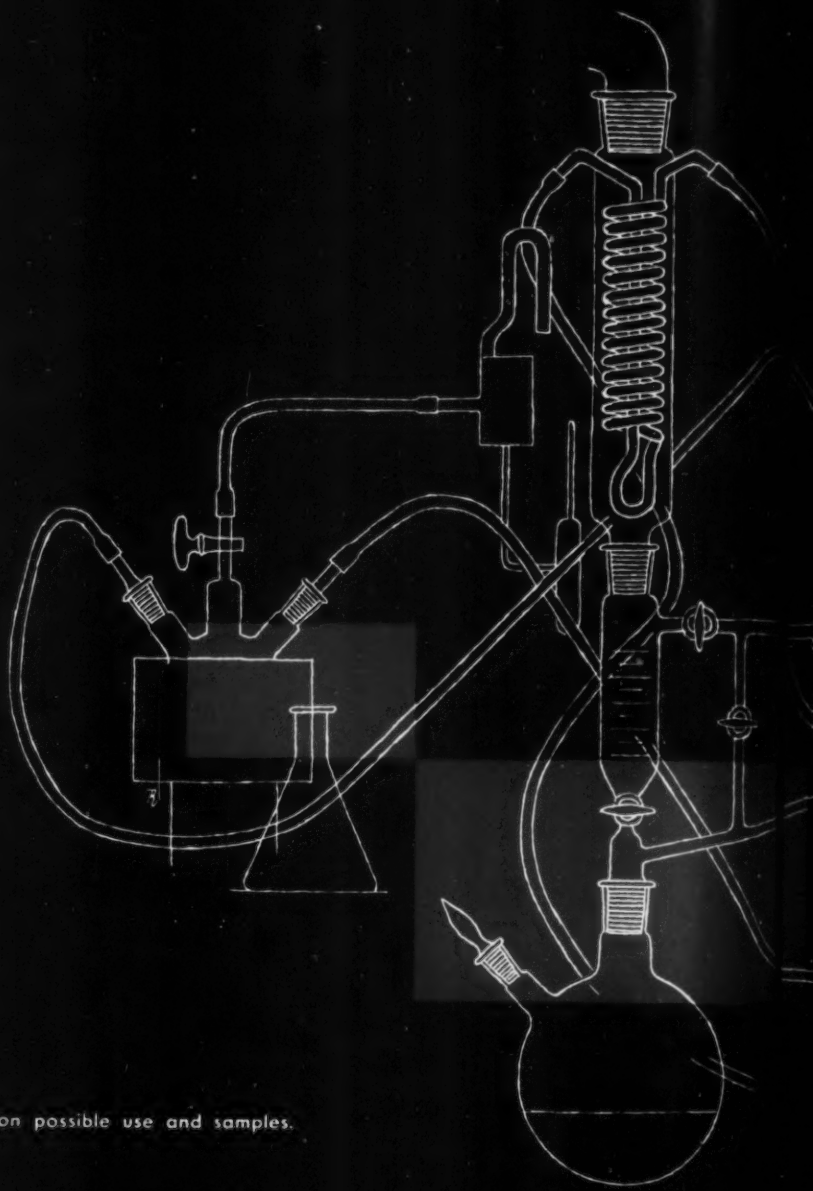

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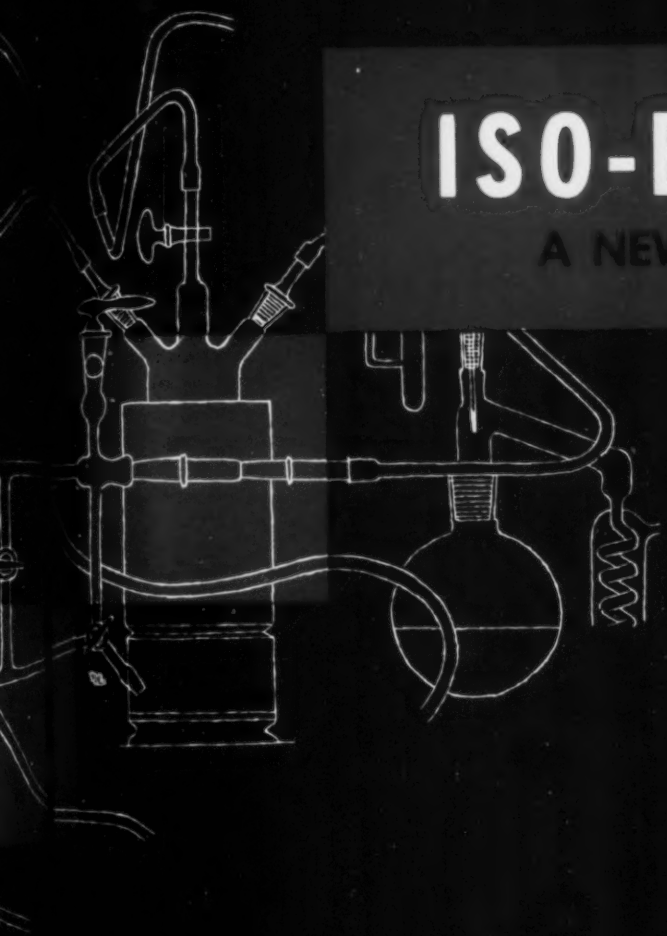

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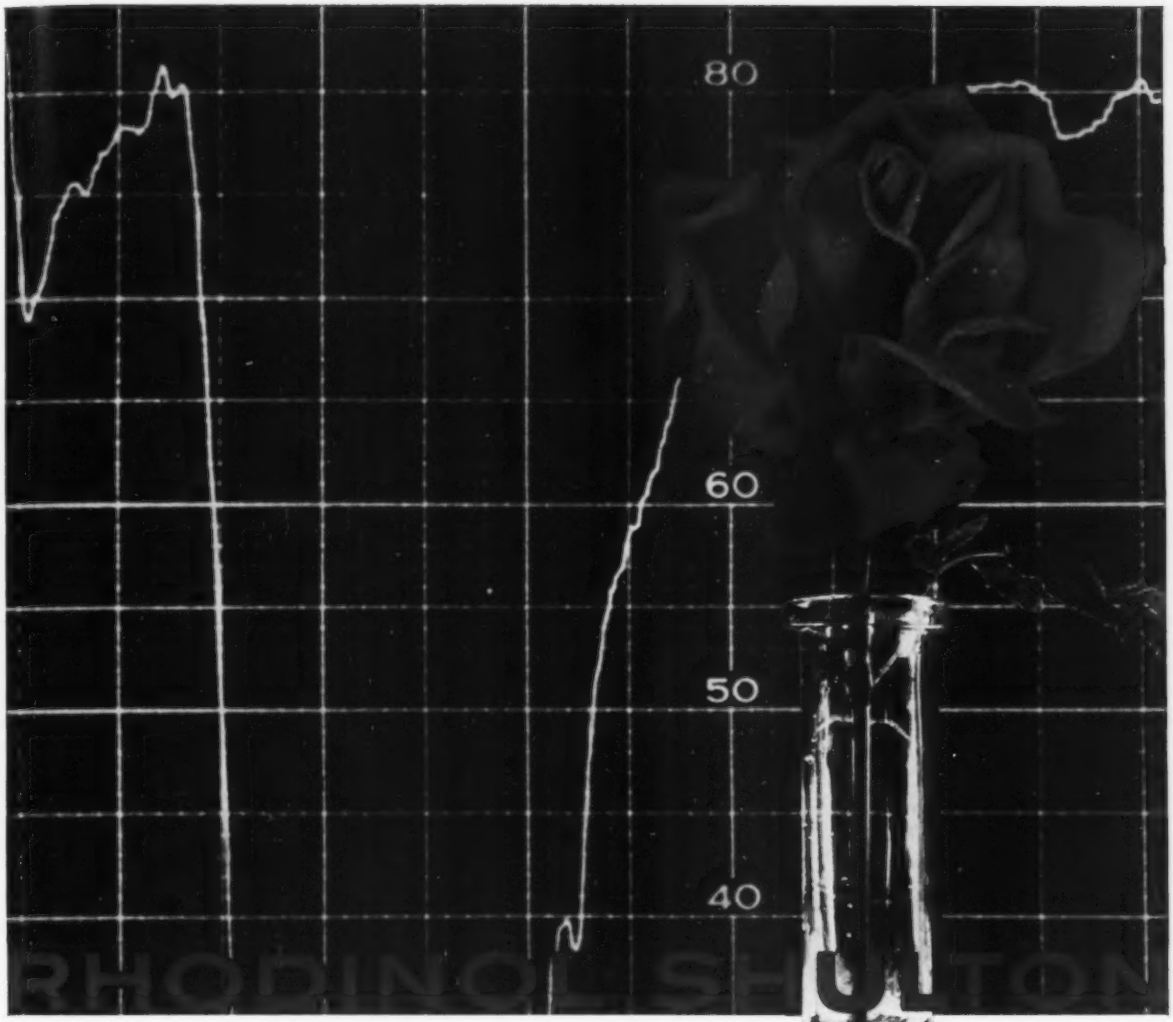

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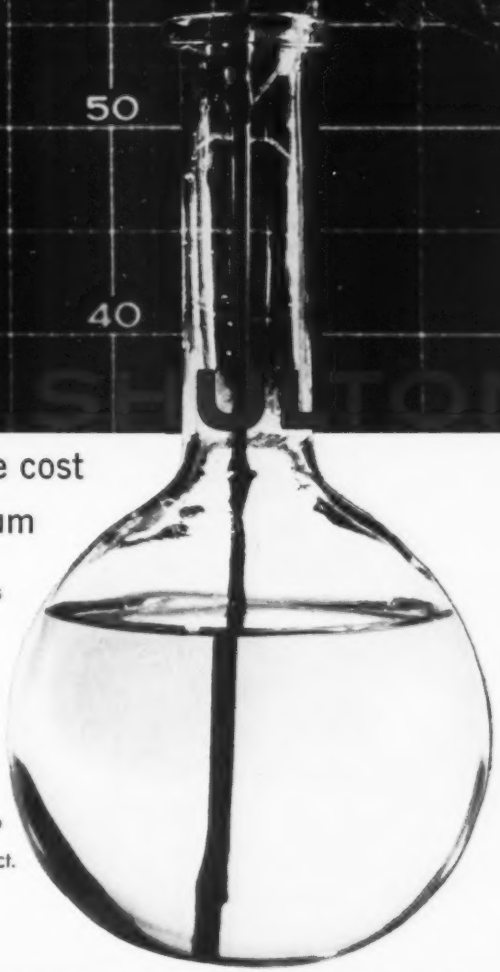

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LAST MINUTE NEWS . . .

"The Perfumer Speaks" Theme of Perfumers Society Symposium

The theme of the annual symposium of the American Society of Perfumers to be held in March will be "The Perfumer Speaks" according to an announcement of President Pierre Bouillette at the October meeting of the Society. Four papers will be on the program according to present plans in which the problems of the perfumer and their solution will be discussed.

Limitation on Loss Leader Selling

Merchants in New Mexico are permitted by a new law to limit the number of loss leader items each customer can buy if the limitation is specified in the advertising. Previously the state's loss leader law prohibited any limit on the number of items a customer could buy. Under the new law a retailer advertising a loss leader (an item sold at a price below its cost to attract customers to the store) must also advertise that he is limiting the number of items available to each customer in every outlet where the sale is conducted.

Research Only Way to Build Vigorous Consumer Business

In a report to stockholders of Procter & Gamble Co., Richard R. Deupree, chairman of the board of directors, stated that the company's expanding research program and its success in providing what consumers want in products have combined to keep the company's business steady and good. "We were one of the first companies in the country over 30 years ago to establish a policy of going to the consumer to find out what she wants. From the interviews our research men went all out to make the new products or improve the old products. Frankly we know of no other way to build a strong and vigorous consumer business."

Nitrogen Propelled Aerosols to be Produced by Aerosol Techniques

Push button toothpaste, cleansing cream, hair dressing and a line of food condiments and syrups now being tested are to be produced by Aerosol Techniques Inc. according to President H. E. Shepherd. Due to its inertness, nitrogen acts like an internal piston delivering the product without physical disturbance by the gas the company states. The nitrogen propellent is less expensive than other propellents the company adds.

Synthetic Vanillin Barred For Use in Natural Wine

The Alcohol and Tobacco Tax Unit of the Internal Revenue Service in Ruling 57-99 bars the use of synthetic vanillin as an ingredient of special natural wine. The agency said that under the provisions of section 5386 of the internal revenue code of 1954 and section 240.440 of the wine regulations, special natural wines may be made, pursuant to an approved formula, from a base of natural wine exclusively, with the addition before, during, or after fermentation, of natural herbs, spices, fruit juices, aromatics, essences and other natural flavorings in such quantities or proportions as to enable such products to be distinguished from any natural wine not so treated. Only such vanillin, as is a natural product and is identified as such by the winemaker, is accepted for use as an ingredient in the production of a special natural wine, the ruling stated. Vanillin which is synthetic may not be so used.

High Turnover in House-to-House Salesmen

The high turnover in house-to-house salesmen was indicated in an article on the Fuller Brush Co. technique in Business Week. In an 11-month period the company lost 15,382 salesmen and hired 15,377 although the sales force totals only 7,000. The reason for this high turnover is laid to the salesmen's inability to earn a worth while income by commissions. To increase the income of salesmen the company added cosmetics in 1948 and men's toiletries later, which now total 20% of the company's annual $100,000,000 sales. However, Fuller salesmen now have 340 products to talk about in the estimated half hour they spend with each customer.

Non-Scent Deodorant Launched by Lucien Lelong

Chemists in the Lucien Lelong laboratories have created a non-scent deodorant called V. P. (very personal) in stick form packaged in a glass container like the company's solid colognes. It retails for $1.

Procter & Gamble Co. Returns to Radio Fold

Top billing which went to radios biggest booster, Procter & Gamble Co., a few years ago, is now likely to return to it. The company has been lured back into the fold as the company has contracted for 40 radio participations per week starting last month. The time is being bought for the dentifrice Gleem.

Parke Davis & Co. Indicted on Price Fixing Charges

A federal grand jury has indicted Parke Davis & Co. on price fixing charges and in addition the Justice Department has filed a civil anti trust complaint against the company. The company is charged with refusing to sell its over-the-counter pharmaceuticals to non-drug outlets. The National Assn. of Wholesale Druggists points out that if the Justice Dept. is successful in forcing manufacturers to sell pharmaceuticals to non-drug outlets it will have a very disturbing effect on the national restrictive sales controversy which is in progress.

Food, Drug & Cosmetic Act Most Beneficial Law in Century

In a lecture before the Food Law Institute of the New York University Law School, Dr. Robert L. Swain, editor of Drug Trade News declared that the Food, Drug & Cosmetic Law was the most beneficial legislation enacted in the last century. The purpose of the law he pointed out is to keep the channels of interstate commerce free of adulterated and misbranded foods, drugs and cosmetics, thus touching vitally the lives of everyone in the country. In addition to its consumer protection it is a powerful asset to the legitimate food and drug and cosmetic industries. That is why they give their active cooperation to the Food & Drug Administration in the enforcement and administration of the law.

Device to Record Shock in Packages Developed

Development of an instrument to measure and record with sufficient accuracy the shock sustained by shipping containers which undergo rough treatment while being loaded and unloaded is described in a report of Air Force Research available to industry. The report, PB 121866, "Measuring Field Handling and Transportation Conditions," D. S. Martin, Wright Air Development Center, November 1956, 32 pages, price $1, describes a device called an Impact-o-graph which is concealed inside ordinary shipping containers where measurements are made without the knowledge of the handling personnel. It costs under $200 and can record shock from any direction continuously as the package is being handled. Data are presented in terms of inches of drop height.

Swan Soap Seeking New Life With Changes in Advertising

Swan soap which was launched some years ago by the Lever Bros. Co. to compete with Procter & Gamble's Ivory soap on a price basis and also on the fact that it floats in two years gained sales of about 40% of the sales of Ivory. However Swans entry into the floating general purpose soap field increased sales in that field 40% but made no appreciable inroads into the sales of Ivory soap. Realizing that it had made no appreciable dent in Ivory sales it was felt that at that time there was no market for two floating soaps. In the post war years Swans sales went down. Consumer polls showed that housewives complained about its softness and the speed with which it melted in water. Then around 1950 Swan disappeared from the market. In 1953 Lever Bros. Co. came back with Swan priced at 5¢ and featuring whiteness, fragrance and floating. About 26 million dollars had been spent on promoting Swan in the previous eleven years. To recoup that loss Swan soap returned to the market with emphasis on the five cent price which would give the retailer a 17.2% markup, or about 6% more than comparable toilet soaps. Recently Swan soap has been quiet and has made no measurable inroads into the bar soap business. Now with a change in advertising agencies and a new approach it is hoped to win a leading place in the market for Swan soap.

FELTON'S NEW LINE OF COMMAND . . . MASCULINE SCENTS

For men only—Felton's vigorous new perfume group is yours to command. Again, Felton's unique combination of experience, skill and instinct has achieved the unmistakable *eau de success*. Here are all the lures you require for tracking down today's tremendous masculine market.

For big game . . . **Beau Brummel #1256,** a he-man odor with distinctive woody, dry bottom note. **Esquire S.T. #20** and **Esquire Country #20** appeal to aristocratic tastes, an original aroma with beautiful dry notes.

For the outdoor species . . . **Fleurs de Tabac #6-1204,** a tobacco and leather character, which stands out, even in the lowest concentrations. All are compounded for complete flexibility . . . for sales-appealing toilet waters, after-shave colognes, talcs and aerosol products.

Perfume compounders will find Felton's new bases stimulating tools for building new compounds or for improving existing lotion, talc or aerosol scents:

Adamal, rich in fine woody notes, dryness tinged with precious resinous notes. **Brummel Base #1156** can be used from 5-15% in existing compounds for a woody-dry bottom note of strong masculine appeal. **Aldicuir,** a unique "natural" base with rich, true leather note.

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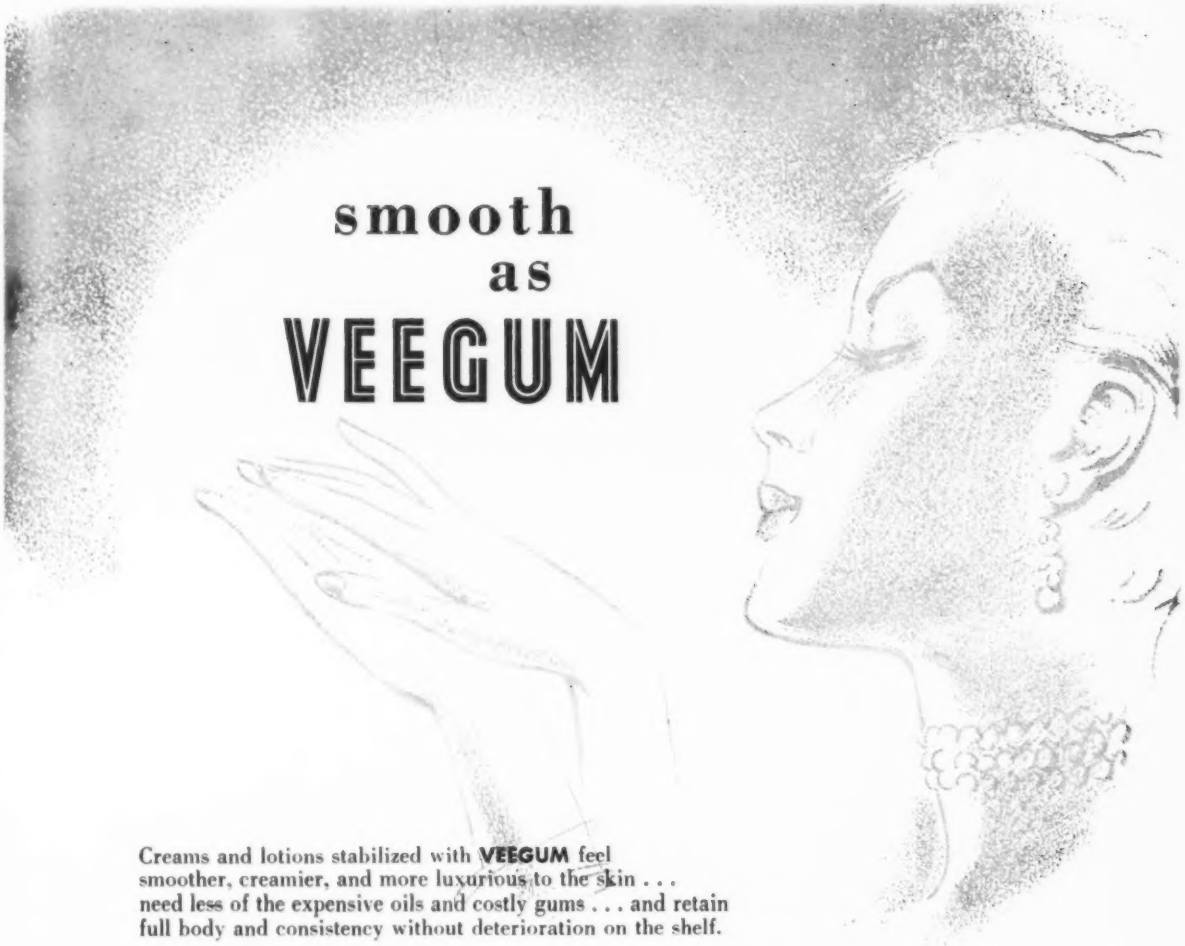

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Creams and lotions stabilized with **VEEGUM** feel smoother, creamier, and more luxurious to the skin . . . need less of the expensive oils and costly gums . . . and retain full body and consistency without deterioration on the shelf.

VEEGUM is a high-purity, inorganic thickener, emulsifier and suspending agent with thixotropic characteristics that make it the ideal conditioner. *Veegum* prevents product thinning, bleeding, and tackiness, even at higher than normal temperatures because it has the unique property of thickening slightly with heat. *Veegum* concentrations (of less than 1%) permanently stabilize many types of emulsions containing oils, fats, and waxes, preventing the phase inversion often encountered in formulations of this type. *Veegum* in aqueous dispersions is compatible with alcohols, polyglycols and similar organic solvents, producing quick-spreading liquids and lotions with superior aging properties, smooth, soft texture, and more attractive appearance.

VEEGUM is a safe, high-quality Vanderbilt product, nontoxic, nonirritating, odorless and tasteless, with an opaque white appearance. It is a complex colloidal magnesium aluminum silicate, developed from natural sources and highly refined under careful laboratory control to assure the highest degree of purity and uniformity. Send today for complete information.

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We make *Myverol Distilled Monoglycerides* in a number of types that are being used in cosmetics. Often, combinations of types can give you close control of viscosity and consistency.

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The way to find out what these materials can do for your products is to try them. The way to try them is to write us for samples. ***Distillation Products Industries,*** Rochester 3, N. Y. Sales offices: New York, Chicago, and Memphis • Gillies, Inc., Los Angeles, Portland, and San Francisco • Charles Albert Smith Limited, Montreal and Toronto.

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THE CHINESE MERCHANT PRINCE

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Fray Grins' wealth came from the manufacture and sale of perfumes. His packages were masterpieces, his perfumes were known throughout the world,and the wealth of Fray Grins, like the proverbial Break-The-Bank, grew and grew, and grew. But all things must end and so, too, did his life at the august age of eighty four less two moons. His eldest son took over and decided that profits must be larger. A little less perfume here, a little cheaper oil there and "qui sait" as the French say.

The firm of Fray Grins no longer bought from the best houses. Then they no longer bought from any house—they went out of business. And the sparkling jewels and the rare editions were sold to the highest bidders.

• • •

If there be a moral to this tale we would conclude that it is "Shortcut in Quality is False Economy". . . Yet we would be bold to say that at Syntomatic we feel there is a practical parallel in combining top quality with true economy. Prove it? Our pleasure . . . Syntomatic Corporation, 114 East 32nd Street, New York 16, New York. MUrray Hill 3-7618.

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by Lin Emery

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. . . PFW's skillful techniques of combining contrasting aromatics have always formed distinctive fragrances — scents which leave a vivid and lasting impression.

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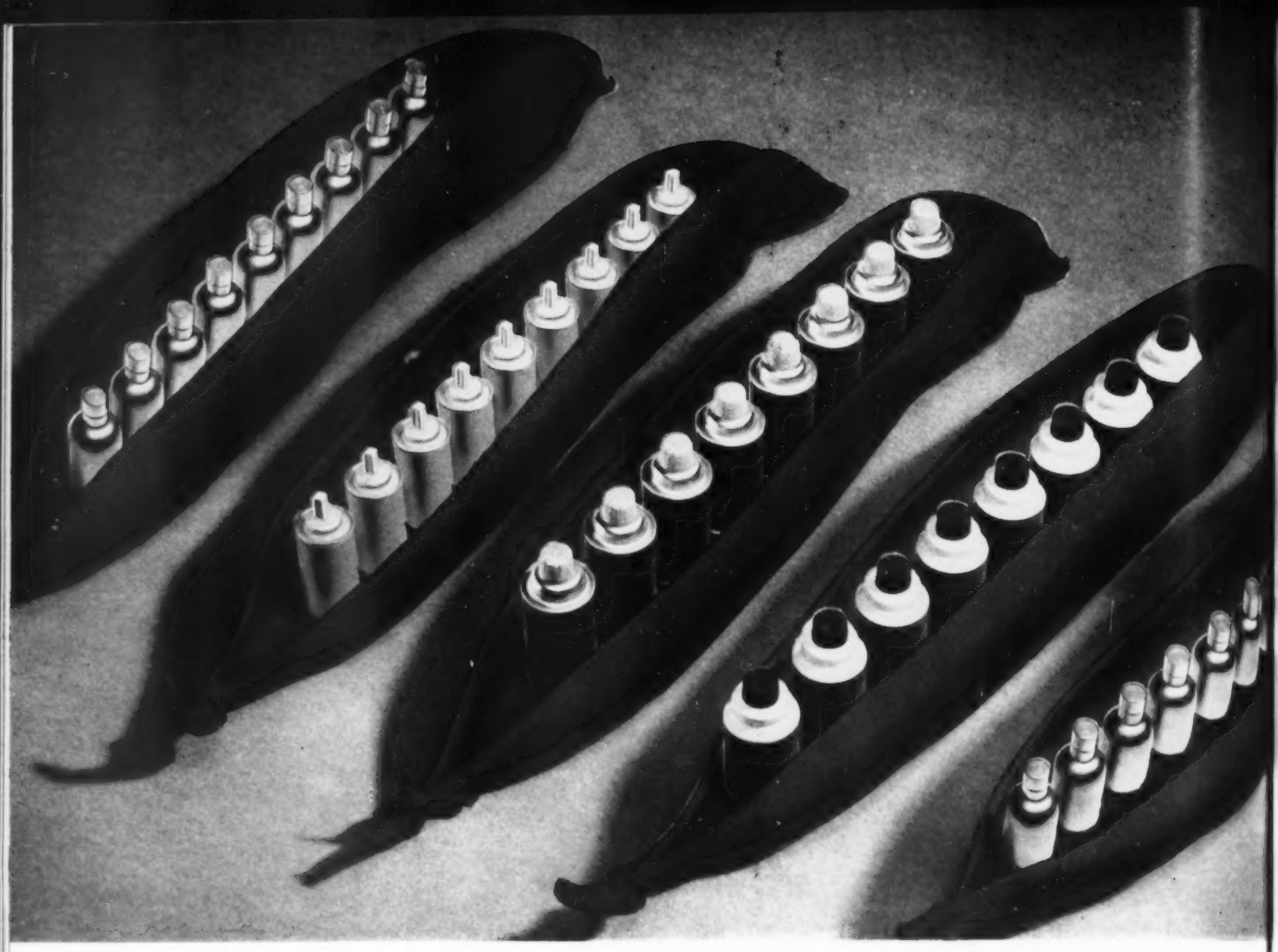

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genetron 11 TRICHLOROMONOFLUOROMETHANE
genetron 12/11 MIXES
genetron 114A DICHLOROTETRAFLUOROETHANE
genetron 12/114A MIXES
genetron 142B MONOCHLORODIFLUOROETHANE
genetron 142B/114A MIXES
genetron 113 TRICHLOROTRIFLUOROETHANE
genetron 22 MONOCHLORODIFLUOROMETHANE
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Kramer Honored

The story of the European tour by the group of S. C. C. members is now History. But I wanted to make a separate and special mention of one item, purposely not included in my story of the tour.

In Switzerland, while enjoying Mr. August Baumeister's hospitality at Mt. Saleve, Bob Kramer was honored with a Swiss watch, presented to him by the capable, M. C., Dr. Irwin Lubowe, on behalf of the tour group for his patience and untold labors in keeping one and all happy.

The many diverse interests of the members along with their idiosyncracies, required a father with Solomon's gift of understanding and justice. Bob Kramer had all this.

All of us hope that he and delightful wife, Lucille, had as good a time as we did.

Lecithin

It is now possible to get corn or soybean lecithin practically pure, or to have the usual 35 per cent vegetable oil replaced by other fats.

Lecithin has been used in European cosmetic practice before World War II. In this country, for one reason or another, it never got much of a play until the last year or two. Products are now appearing with lecithin stated right on the label.

Moisturizing, a complex operation if properly carried out, is more than the use of polyols, lanolin derivatives and unsaturates. It must of necessity involve lecithin, too.

In sufficient concentration, lecithin has emollient effects, yes, but it also affects emulsion and straight fat systems, too. Our laboratory finds some discoloration of white creams and lotions after a period of time and only slight alteration of fragrance, when the proper type of lecithin is used.

Soap and products based on soap can use it too, but of course it will have to be added after saponification.

Indications are that the ideal combination is, lanolin fractions and lecithin used together with the right polyol.

New Cosmetic Regulations

Any new law has a lot of facets to it. If it does more good or protect more people than it harms, it is said to be a good law.

Among other Food and Drug legislation now being contemplated, bills intended to regulate the use of new materials and the consequent new products are being considered. It is recalled that some small "voices in the wilderness" during the days of the Copeland Bill hearings, claimed that new legislation would just about wipe out the small manufacturer. Now that about twenty years have passed, these words were prophetic. The large companies got larger and the smaller ones were squeezed out or rendered practically nonexistant.

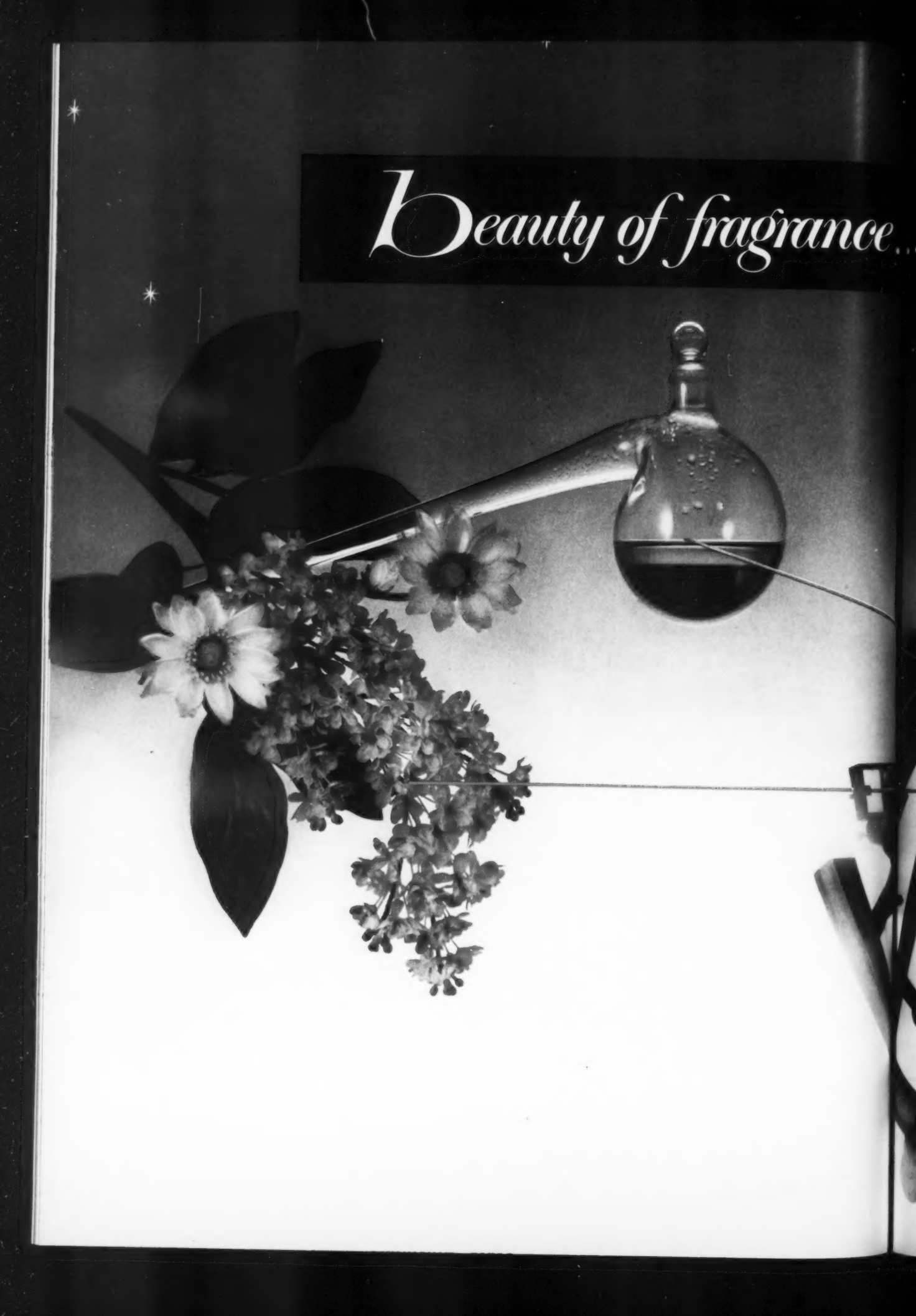
The big food and drug companies simply absorbed the extra costs to do business under the new laws and showed lower profit margins. The Cosmetic Industry however has been derelict in duty in not increasing prices proportionate to increased costs during the same period. Now with new legislation being talked about, costly pharmacological and dermatological tests will up the price of cosmetics or put even the "big boys" on a hot seat. The small cosmetic company, like its predecessors in foods and drugs, gets the squeeze put on.

Wonder if it is the intent of Congress to make the big companies bigger and to impoverish the small ones? Where is the Small Business Administration in Washington when this type of sacrifice goes on? Worse yet, where is the Voice of small manufacturers while their funeral is being prepared?

Notes

Some new words are creeping into use by our foreign contemporaries, namely, Eudermic, Eumorphic and Kalotechnique . . . Along with biostimulins, phyto-stimulines and a few others—that's quite a novelty . . . A reprint on the development of an essential oils industry in India and Pakistan has just been received from Sadgopol who is now at the Indian Standards Institution at Delhi—he continues to contribute to the independence of this phase of industry for India . . . Amos Light suggests that a foundation be set up for the study of Human Baldness, with the 40,000,000 bald men each contributing $1—If you could get a famous TV personality who is bald to give such a plug on a nationwide broadcast for a few times, and none of the money was used for "incidentals and expenses," quite a bit of change might be so raised—I could suggest a couple of people to head up such a foundation. . . . Dow have just published a booklet entitled, "Silicones in Medicine and Surgery," by R. R. McGregor a foremost authority on silicones—This review of the physiology of silicones is further complimented by an extensive bibliography—The booklet should stimulate your product imagination—An advertising mail stuffer from one of the department stores announces a new, historical, nutritive and moisturiz-

continued on page 23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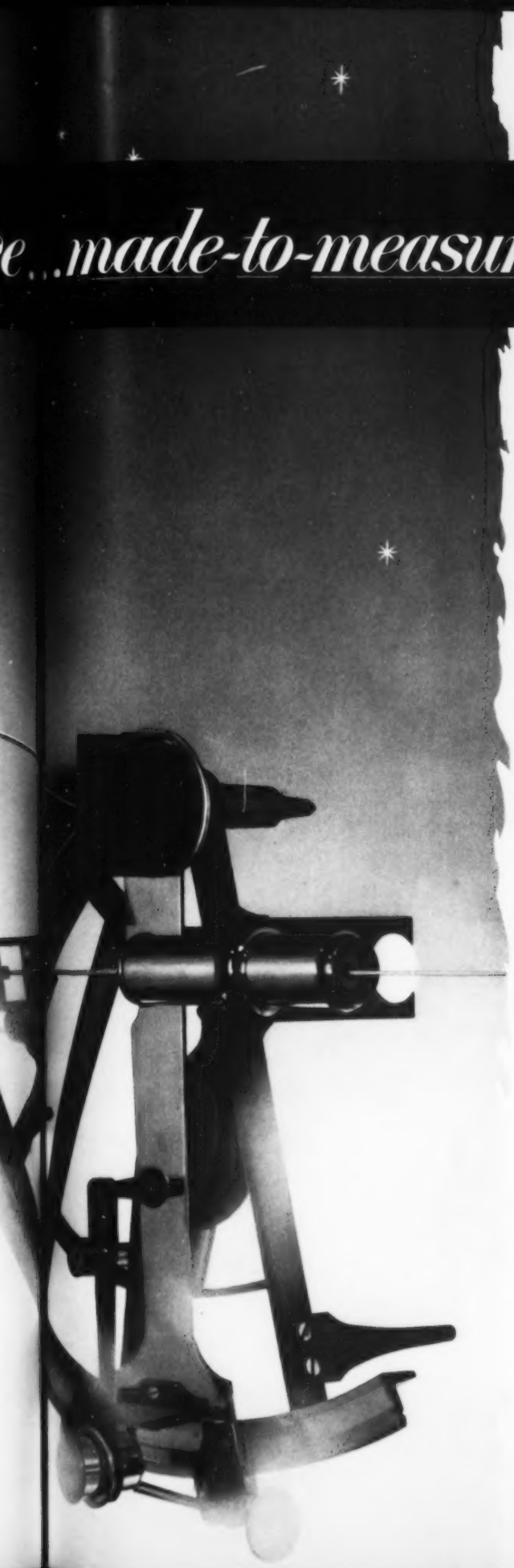

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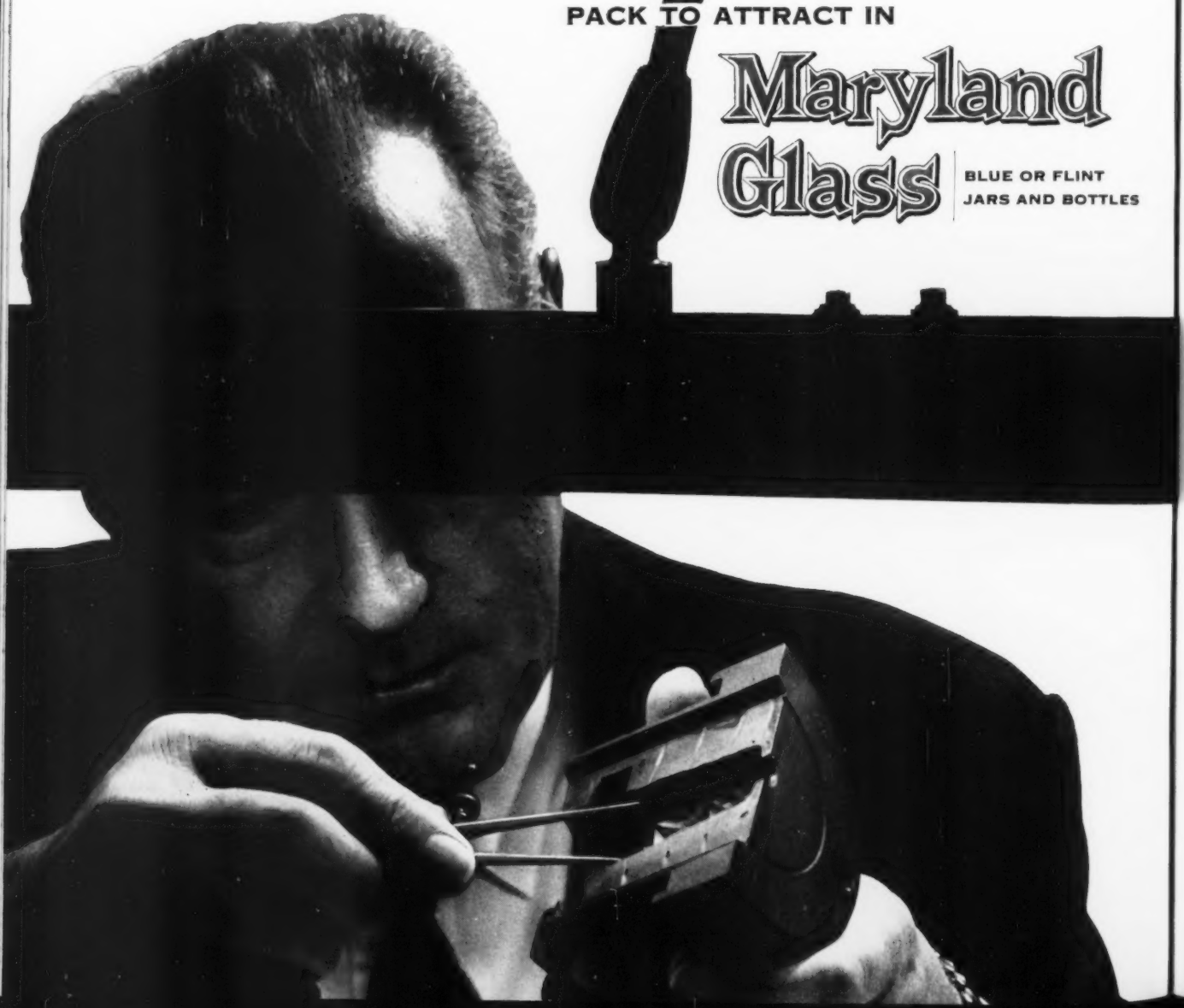

ing cream containing not just Royal Jelly, not just silicone, but also turtle oil, shark oil and a new chemical discovery "that is a natural food supplement" . . . . You would think this would be the acme of something, but no, this cream contains 20 additional ingredients "never before put into one single jar" . . . . Now THERE is scientific development! . . . . Speaking for Ray Reed and myself, Steve Goode made no honors for himself at the recent Seminar in Chicago, commemorating simultaneously the tenth anniversary of the formation of the Chicago Section of the Society of Cosmetic Chemists . . . . Back in 1954, writing in SEIFEN OLE FETTE WACHSE, Janowitz discusses antiperspirants and deodorants with the following passage in the text—"It would be interesting to determine if cortisone and ACTH, which stimulate the suprarenal glands, have any influence on perspiration and body odor . . . . If you use zinc oxide, you will be interested in knowing that up to 42.9 p.p.m. of excess zinc has been reported being present in zinc oxide . . . Amino acids are getting a big play in many fields—the latest is in the fight against tooth decay—Fosdick and co-workers find new amino acids and peptide derivatives such as the phthaloyl amino acids to show most promising results . . . Bromelin, the proteolytic enzyme derived from pineapple is now available commercially . . . . Spent an interesting day with County Laboratories (England) Marketer Peter Haddon . . . . Bob Kramer stopped in for lunch on his way through from St. Paul to New York . . . Neumann of Deutsche Hydrierwerke came in from Toronto to talk about their products . . . Smelled a sample of Lactoscatone, a new chemical body which will not discolor but possesses a fecal animal note, useful in Jasmine and related fragrances . . . Stopped in on G. Robert Clark at FDA on moving day—was afraid he would put me to work . . . George King, one of Atlas Powder Co.'s industry marketing managers is a converted European car driver, but he has no more sense of direction than I—however, am most grateful for the lift to the Philadelphia airport in his Delphine—which reminds me that Bill Griffin (a first time father the day I saw him) has some new homework now . . . Investigated D & O's aerosol laboratory—very useful department, Herb and Vince . . . Jim Baker and I became reacquainted with Manny Wolff's place and talked about stamps and things.

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QUESTIONS & ANSWERS

1260: QUINCE SEED MUCILAGE

Q. *We are unable to obtain quince seed mucilage and would appreciate your advising us of a substitute. A. M. O., Chile.*

A. You can use methyl and carboxy methyl cellulose as a substitute for quince seed mucilage.

1261: LIQUID SHAMPOO

Q. *We would like to manufacture a liquid shampoo for babies or small children which will not irritate the eyes. If you know of some suppliers who handle raw materials for this type of shampoo, kindly give us their names and addresses. F. N. F., Michigan.*

A. It is our understanding that ampholytic surfactants are used in this type of shampoo. Whether such a material is available for your purpose is unknown, but we are sending you the names of suppliers of ampholytes whom you can contact on your problem.

1262: HAIR DYE

Q. *What is the formula for turning into ash blonde, hair which has previously been rendered blonde with the use of oxygen water? Would you please recommend a modern book on hair dyes? B. D. T., Brazil.*

A. Obviously to have the hair turn to ash blonde after having bleached it with oxygen water, would require some dyeing. The number of books on hair dyes is exceedingly few and, frankly, we do not know of any we can send you. However, we are sending you a reprint of a related article. A German book on hair dyes which is considered by many as the bible of the hair dyeing business has recently been reprinted. The publisher's name goes to you under separate letter.

1263: SHAMPOO MATERIAL

Q. *You have made reference to a British material for use in a liquid cream shampoo in an earlier issue of the American Perfumer. Can you give us the name and supplier of this material? N. I. H., Utah.*

A. The material mentioned is Sipon LSN Paste supplied by Sipon Products, Ltd., 23 Dryden Chambers, 119 Oxford St., London W.1, England.

1264: NEW FORMULATION

Q. *We are interested in a formulation that will conceal discolorations of the skin, similar to Lydia O'Leary's "Covermark." C. N. J., Massachusetts.*

A. We do not know the composition of "Covermark." As you know, a great deal of effort was spent in developing this product so that it would be difficult to try to duplicate it. In manufacturing a product intended to cover the pigmentation or discoloration of skin, you will have to devise your own fatty base depending upon whether you want the product to be a stick or a paste. It will then take between 10 to 25 per cent of titanium dioxide, depending upon the depth of covering you are trying to get, and this of course will have to be tinted with suitable iron oxides and color lakes to give you the necessary shade. We suggest you start by determining which vehicle you want as a carrier for the covering agent and that afterwards you use the amount of titanium dioxide that you feel necessary to get the degree of covering you wish.

1265: ALUM STONE

Q. *How can we make a good alum stone? We have experimented but have only obtained small crystals with poor cohesion. Any suggestion how to obtain really solid blocks will be very much appreciated. T. V. M., Egypt.*

A. The best way we know of making alum blocks or stone is to use hydrous aluminum sulfate, or ammonium or potassium alum or combinations of them, and melting them in their water of crystallization. The melt is then poured into molds which have been previously oiled.

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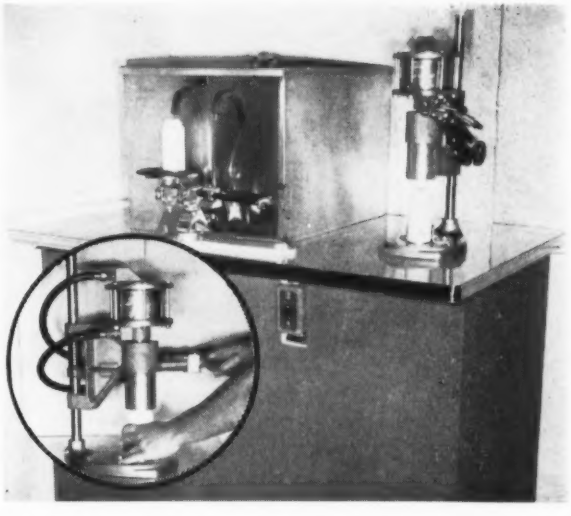

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Aerosol NEWS

by Dr. Winston H. Reed

Nitrogen Propellent

There is currently renewed interest in the use of compressed gases, especially nitrogen, for certain food, cosmetic and pharmaceutical products. These compressed gases have been tried for aerosol use for a number of years but have not been used to date in this country for commercial pressure dispensed products. As G. Klitsch and Earl Graham, of Crown Can, pointed out in their paper on non-aerated aerosols, (Soap & Chemical Specialties, *33*, 81-83, Sept. 1957), nitrogen gives less foam than a more soluble propellent gas and can be used as a compressed gas piston to push out various semi-viscous liquid products. Tooth paste, creams, lotions, cheese spreads and salad dressing are some of the products that might be dispensed by this method. Precision Valve have been active in some of the recent work on nitrogen charged products. One difficulty, gas charge is only a few grams and may fall within the normal variation of tare weights of container and valve. It is thus difficult to spot partially gassed or ungassed cans by weight checks.

Perfumes & Products

There are still far too many household and industrial aerosol products that badly need the benefit of the perfumers art. Many insecticides would get greater frequency of use if they carried a better odor. Window cleaners, spot removers, paints and lacquers, dust sprays, lubricants, moth sprays and shoe polishes particularly need improvement. While it has been observed that, in the aerosol form, a little perfume is most effective, probably due to the large surface area created from the fine particle size developed, it is equally true that some of the normally unperfumed household and industrial products are more objectionable in the sprayed form. Sad when this negative sales feature can be so easily masked by the proper aromatic at a slight cost.

Powder Sprays

Powder sprays, such as talcum, foot sprays and certain pharmaceutical items have been developing rather slowly. These, like aerosol paints, are products that are difficult to valve. Risdon particularly have been doing some interesting work in this area and further development and progress can be expected.

Christmas Products

With the gift season just ahead, the aerosol perfumes, colognes and in fact all types of pressurized cosmetic products should set new highs. One should also remember to take home for the gift-wrapping members of the family an aerosol gold and silver paint and snow bomb, plus possibly a can of pressurized fire engine red and forest green lacquer. Some very interesting decorative effects can be achieved by the use of stencils and these aerosol products.

Since the aerosol products dry very quickly and are available at the "touch of a button" they save time in the packaging rush, provided Jr. and Sis don't start squirting the can around too liberally. Anyway, market-wise or package-wise, we hope aerosols will contribute to your successful Christmas.

In Hot Water Again

Those who have experienced trouble from valve buttons and other small parts catching underneath the chain of the 130° water bath conveyor line, or who have had cleanup problems due to rusting magnets, may be interested in the new and very neat water bath or heat test tank I saw demonstrated by Al Osman and Lee Wallace of the Wallace Co., in Bridgeport.

This tank is of stainless steel, uses 4½" nylon flat top chain. All magnetic elements and driving parts for the chain are located outside the tank. Water recirculates from each end to overflow near the center for self-cleaning. Cans thus both enter and leave the bath through clean water. Any type of heat, such as steam, hot water, or electricity may be used. The magnetic elements are strong enough to carry a 6-ounce empty can submerged completely through the bath. Since the chain is light, one man can lift the chain and clean the trough. This system eliminates some of the sources of rust found in some conventional baths. Those familiar, from long experience with aerosol product techniques, can appreciate the importance of attention to some of these details in this design, which go towards achieving trouble-free production.

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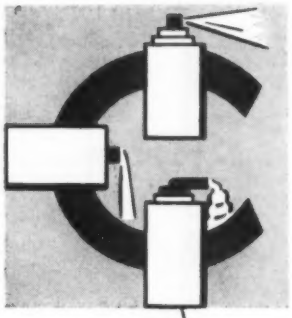

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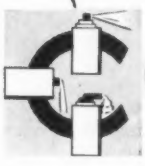

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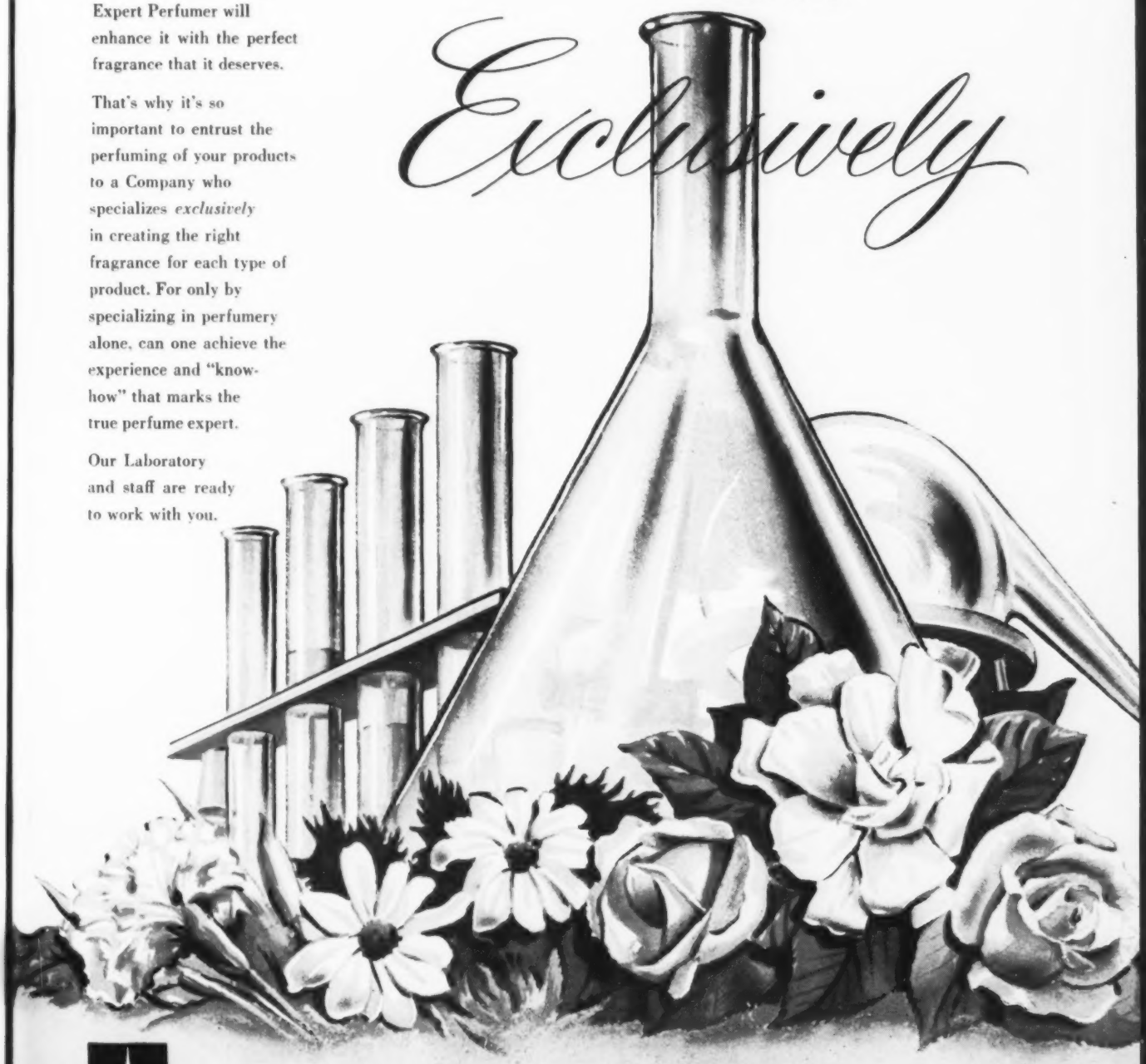

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September 4, 1957

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48 West 38th Street
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Gentlemen:

Knowing of the pride you and your associates have in the fact that THE AMERICAN PERFUMER gets around the world, I am sending to you a copy of a letter we wrote to Mr. Erik Vejborg of Copenhagen, Denmark, one of your many overseas readers. I say "one of your many overseas readers" advisedly because we have received letters from many parts of the world praising our CHINESE MERCHANT PRINCE advertisement. These letters indicate many things- one of them is that certain types of sales appeal are universal. Letters about our CHINESE MERCHANT PRINCE have come to us from Milan and Mexico City, from Oslo and Omaha, Cardiff, the Caribbees, and now from Copenhagen!

No doubt our Chinese Merchant Prince is pleased- we know we are!

With kindest regards,

Sincerely,

SYNTOMATIC CORPORATION

Victor G. Fourman

President

Dr. V. G. Fourman: jg

* Since the above letter was written, two more inquiries have been received; one from Formosa and another one from Mexico.

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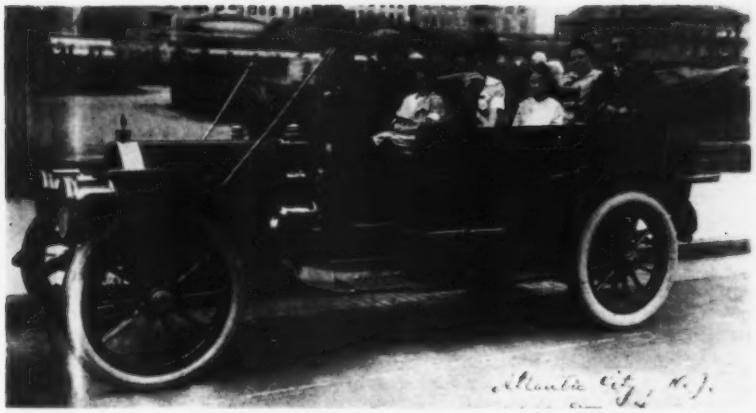


The brilliant chemical genius the late Alois von Isakovics, founder of the aromatic chemical industry in America is shown with his family in 1912. Seated in the rear with him is Mrs. von Isakovics.

The Perfumery Aromatics Industry in the United States

By PAUL Z. BEDOUKIAN, Ph.D.
Consulting Chemist, Author of "PERFUMERY SYNTHETICS AND ISOLATES"

The perfumery aromatics industry in the United States is an offspring of developments which began in Europe about a hundred years ago. The story of its inception, of its early struggles, of its phenomenal growth through two world wars, and of its hopes for the future, is a fascinating one. It is regrettable that much of its early history has been forgotten, yet a complete recording of the information available would fill the pages of a good-sized volume. If any important data has been inadvertently omitted, the writer can only offer his apologies.

The discovery of certain aromatic chemicals in Europe during the latter part of the nineteenth century led to the development of the aromatics industry in the United States. These discoveries did much to alleviate serious doubts as to the value of synthetic substances, and forced the industry to accept them as necessary adjuncts to natural products. Foremost among these were the synthesis of vanillin from guaiacol in 1876 by Reimer; of coumarin by Perkin in 1877; of anisic aldehyde in the same year by Tiemann and Herzfeld; the preparation of heliotropin from piperic acid by Fitting and Mielch in 1869, followed by its manufacture from safrol in 1890. Bauer's discovery of the nitro musks in 1886 was of revolutionary importance since it was the first aromatic chemical of purely coal-tar or synthetic origin. The structure of terpineol had been elucidated in 1893-1894 by the researches of Wagner and Wallach but a method for its preparation had been patented in Germany in 1892. Finally, Tiemann's discovery of the ionones in 1893 opened another chapter in the field of synthetic perfumery aromatics and paved the way for the acceptance of a wide variety of such products for use by the perfume and allied industries.

Reprinted from the "Industries de la Perfumerie" Volume 12, No. 4—April 1957 and Volume 12, No. 5—May 1957

The recognition of the importance of these aromatics is evidenced by the speed with which the discovery put their products on the market. The structure of vanillin was first established by Tiemann and Haarmann in 1874. By 1876, vanillin was placed on the market at the fabulous price of $1500 per kg. The first synthetic vanillin was laboriously prepared by the hydrolysis and oxidation of the pinewood glucoside, coniferin. Aubepine was marketed in 1877, the year of its discovery. Coumarin was marketed just a year after its synthesis. The others mentioned previously were also placed on the market in great haste, indicating the usefulness of these products to the industry.

What was happening in the United States while these epoch-making discoveries were taking place in Europe? During this period, a number of essential oil distilling companies in the United States were carrying out distillations of imported woods and spices. There were as yet no worth-while developments in aromatics and little possibility of research along these lines. The discoverers of these important aromatics had protected their work by taking out American patents. The law at that time did not specify that a patented process had to be put to use after a given period. Consequently, it was possible by the mere act of taking out a patent to prevent anyone from manufacturing the materials so protected during the life of the patent.

Nearly all the big European houses had agents in the

United States for their products. Many American importers or distillers of essential oils also took on the sales and distribution of materials developed in Europe. In most instances, especially in the early days, the synthetic aromatics were sold in the form of compounds or in diluted form, under a name which had little or no bearing on the composition of the product. Prices were inordinately high as compared with the prices charged for the same products in Europe. For example, musk xylol sold for $21 an ounce in ten per cent solution, or $336 per pound. By 1911 it had gone down to $24 a pound. Similarly, the ionones were sold in 10 per cent solutions at $128 per pound, and again they were much cheaper in Europe. Terpineol was selling for $12 a pound at the turn of the century.

Small wonder that not long after their discovery in Europe, some of these items were secretly manufactured in the United States and sold to trusted clients either as such or in the form of compounds. Judging from lawsuits involving holders of patents on ionones, it is quite obvious that they were made secretly and used in the United States less than ten years after they had been developed in Europe. This fact is confirmed by those who were active in the industry at the turn of the century. The same remarks can be made regarding the secret manufacture of nitro musks in America over fifty years ago. The prices charged for these materials were so fabulous that it paid to import all the raw materials from Europe and make even small quantities for local consumption. The task was difficult. Even when the process was known through the patents, it was not always easy to find chemists able to carry out the syntheses of these products. Moreover, almost all the raw materials as well as the glassware and chemicals had to be imported from Europe since they were not available in the United States.

An example of the conditions and difficulties encountered is the classic case of the introduction of vanillin manufacture in America. In 1902, John F. Queeny founded the Monsanto Chemical Company. He borrowed money from friends for the purpose of manufacturing saccharin to be used in fountain syrups and soft drinks. The German manufacturers, alarmed at the possibility of competition from an American manufacturer, lowered the price of saccharin from $6.00 a pound to $.60 a pound, thus making the manufacture of saccharin in the United States highly unprofitable. In desperation, Queeny went to Europe in search of ideas and assistance. While in Switzerland he met a chemist by the name of Gaston du Bois who came back to America with him and began the manufacture of vanillin from eugenol under the most primitive conditions. Vanillin was thus the first aromatic chemical made and sold in the United States, around 1903-1904. Monsanto then started making coumarin from imported German intermediates.

Shortly thereafter, the Haarmann-de Laire-Schaefer Company began the manufacture of vanillin, with German backing. It should be mentioned that at an even earlier date, in 1898, Dr. Warner had established the Warner Chemical Company which attempted without success to manufacture vanillin.

In spite of the American manufacture of both vanillin and coumarin, these two items along with an increasing number of others were imported in ever larger quantities until the outbreak of World War I.

It is interesting to note that although the first few pounds of vanillin manufactured in Europe were sold at about $700 a pound, by 1890 the price in the United States was down to $88 a pound; in 1901, around $16 a pound, and by 1906 it sold for as low as $4 a pound.

Coumarin did not start at a very high price because it was always readily available by extraction from tonka beans. In 1890 it sold at around $24 a pound; in 1904 at $4.50; and in 1906 at $3.25 a pound.

Francois deLaire of Fabriques de Laire, Issy, France

G. DE LAIRE & CO.'S

NOVELTIES IN PERFUMERY.

Awards at Exhibitions.

Paris, 1878, Bronze Medal.
Bordeaux, 1882, Diploma of Honor.
Amsterdam, 1883, Gold Medal.
Antwerp, 1885, Gold Medal.
Barcelona, 1888, Gold Medal.

PARIS, 1889, GRAND PRIX, Highest Award.

	PER OZ.	PER LB.
Aubepine Powder	$1.50	$21.50
Aubepine Liquid	2.50	37.50
Benzoic Acid	.20	2.75
Bromelia	2.25	32.00
Caryophylline (Carnation Pink)	1.50	21.50
Cerfoline	1.00	14.00
Cinnamic Acid	.80	11.00
Cinnamol	.30	4.25
Coumarine	1.75	24.00
Crategine	1.25	17.50
Cuir de Russie	.75	10.00
Heliotropine Crystals	2.50	37.50
" Amorphous	2.50	37.50
Hemerocalle	2.75	39.50
Hyacinthe (Jacinthe)	3.50	50.00
Orris	2.25	31.50
Lilac (Muguet)	2.00	25.00
Yara Yara	2.25	32.00

5 per cent. discount allowed on 10 lb. lots of any one kind.

For the convenience of experimenters any of the above can be had in as small quantity as one ounce, which is sufficient for a full and fair test of their great advantages.

Vanilline, $5.50 per oz. net cash in New York. Original packages of 1 oz. and 48 ozs.

The year 1906 was a memorable year for the American perfume industry in that the first issue of the American Perfumer saw light. It has grown to become the leading perfumery journal in the United States. Going through its pages, we find a great deal of information which portrays vividly the development of aromatics in America.

An indication of the aromatic chemicals imported from Europe and sold in the United States is given by the following price list of Ungerer and Company, dated 1907-1908.

PRICE LIST OF IMPORTED AROMATICS OF UNGERER & COMPANY, INC.

	Jan.-Feb. 1907	Feb.-Mar. 1908	Aug.-Sept. 1908
Acid, benzoic	$ 1.00 lb.	$ 1.00 lb.	$ 1.00 lb.
Aubepine (Powder)	4.00 lb.	4.00 lb.	4.00 lb.
Aubepine (Liquid)	5.00 lb.	5.00 lb.	5.00 lb.
Acetate of Benzyl	3.50 lb.	3.50 lb.	
Acetate of linalyl	10.00 lb.	12.00 lb.	
Acetate of bornyl			
Aldehyde, anisic	3.75 lb.	3.75 lb.	3.75 lb.
Allyl Isosulphocyanate		2.70 lb.	2.70 lb.
Alphene	12.00 lb.	12.00 lb.	12.00 lb.
Anthranilate of Methyl		18.00 lb.	16.00 lb.
Benzaldehyde		.75 lb.	.75 lb.
Benzaldehyde (FFC)		1.65 lb.	1.65 lb.
Benzoate of benzyl		2.75 lb.	3.00 lb.
Benzyl benzoate			2.25 lb.
Benzylic alcohol			3.50 lb.
Bornyl acetate			3.00 lb.
Cinnamic alcohol			12.00 lb.
Cinnamic aldehyde	1.50 lb.	1.50 lb.	1.50 lb.
Citral	5.00 lb.	5.00 lb.	4.50 lb.
Cumarin, extra	4.00 lb.	4.00 lb.	4.25 lb.
Cyclamen	36.00 lb.	36.00 lb.	
Eucalyptol, C. P.	1.60 lb.	1.60 lb.	1.50 lb.
Geraneol "P"	6.00 lb.	5.00 lb.	4.75 lb.
Geraneol "C"	5.00 lb.	6.00 lb.	5.00 lb.
Heliotropine	1.75 lb.	2.00 lb.	2.00 lb.
Heliotropine extra	4.00 lb.	4.00 lb.	4.00 lb.
Heliotropine amphorous	9.00 lb.	9.00 lb.	9.00 lb.
Indol C. P.			20.00 oz.
Linalol	5.00 lb.	5.00 lb.	5.00 lb.
Lilacine	.70 lb.	.70 lb.	
Linalyl acetate			10.00 lb.
Musk (Cetonic 100%)		20.00 lb.	20.00 lb.
Musk (Xylene 100%)	4.00 lb.	3.00 lb.	2.00 lb.
Methylheptenone	1.25 lb.	1.25 lb.	1.25 lb.
Oil Orris (absolute)	32.00 oz.	35.00 oz.	35.00 oz.
Oil Almonds (artificial)	.75 lb.		
Oil Almonds (FFC)	1.65 lb.		
Terpeniol "S"	.60 lb.	.60 lb.	.60 lb.

The April, 1907 issue of the American Perfumer carried an advertisement of the sale of 25,000 pounds of vanillin manufactured by the Verona Company and sold by G. Lueders & Company, a tremendous quantity for those days. It appears that the Ozone-Vanillin Company of Niagara Falls, New York, was manufacturing vanillin by ozone oxidation of eugenol and selling it in stiff competition against other manufacturers of vanillin.

Another prominent manufacturer of vanillin was the Haarmann-de Laire-Schaefer Company. They were also the first to manufacture sizable quantities of ionones, under the direction of Dr. Schaefer.

Several establishments of entirely American origin began small scale manufacture of synthetics at an early date. In 1889 Alois von Isakovics established the Synfleur Scientific Laboratories. Von Isakovics came from Austria and pioneered the manufacture of aromatic chemicals in America. He was an active chemist and during the years 1908-1912 delivered a series of interesting and informative lectures at Columbia University and other colleges on the chemistry and manufacture of perfumery aromatics. He died at the age of forty-six, but his vigorous efforts to manufacture a large number of aromatic chemicals and perfume compounds made a lasting impression on the young American perfume industry which was so dependent on European sources of supply.

Another American company established before the war was the Van Dyk & Company founded in 1902 by Dr. Samuel Isermann and L. A. Van Dyk. This company was active in the manufacture of synthetic aromatics and of finished compounds. The two companies were completely independent of foreign connections.

Still another American company, Dodge & Olcott, had been in business as successors to Robert Bach since 1798, and had long been active in the distillation of essential oils. In 1889, a young American chemist, Francis D. Dodge, working as a student in the laboratories of Victor Meyer, first isolated citronellal in its pure form. The following year he published similar studies on citral. In 1891 Dodge returned from Germany and entered the family business which was then mainly engaged in the distillation of essential oils. The only synthetic manufactured by the firm at that time was methyl salicylate. Under the direction of the young chemist, the firm soon began the manufacture of a number of isolates obtained from essential oils.

As might have been expected, the fledgling American companies soon ran into trouble with their European backed rivals. In 1907, the American patent of Tiemann for the manufacture of ionones expired, but the de Laire patent was still in force. Lengthy litigations were started to stop the manufacture of ionones in the United States by American companies, but apparently these were unsuccessful and no clear cut decisions were reached by the courts. As a result of the expiration of the ionone patents and their subsequent manufacture in the United States by independent American companies, the price of ionone fell from $110.00 a pound for a 10 per cent solution in 1907 to $50.00 a pound for a 15 per cent solution.

The synthetic nitro musks continued to be made in Europe and the prices skyrocketed during the first World War. In this connection, the writer was told that in 1909 the demand for nitro musks was so great and the profits so lucrative, that A. Chiris Company brought over from Europe all the equipment and the technical personnel needed for the manufacture of these items. Substantial quantities of the musks were made at the plant of J. A. Crombie and Company of New Jersey. After the required amount of musks was made, the whole plant was dismantled and along with its personnel, shipped back to Europe.

The establishment of Dodge & Olcott in the 1880's

By 1908 the industry was consuming a large range of synthetic aromatics. In the meantime, specialties had appeared on the market which were based on newly discovered European synthetics of undisclosed nature. Of these synthetics, amyl salicylate, hydroxycitronellal, heptin or octin carbonate esters and various isolates deserve special mention.

To indicate the range of synthetic aromatics in common use by 1910 and the prevailing prices, the following price list of aromatics appearing in the Dec. 1910 issue of the Synfleur Bulletin is given below:

Acetophenone	$ 6.00 lb.	Isobutyl salicylate	$ 3.00 lb.
Amyl benzoate	3.00	Iso-eugenol	2.50
Amyl salicylate	1.50	Jacinth (phenyl acetaldehyde 50%)	16.00
Benzyl acetate	1.25	Linalool	6.00
Benzyl alcohol	2.50	Linalyl acetate	7.00
Benzyl benzoate	1.25	Linalyl formate	11.00
Benzyl butyrate	5.50	Melilot (p-methyl acetophenone)	6.00
Benzyl formate	8.00	Methyl anthranilate	16.00
Benzyl isoeugenol	8.00	Methyl benzoate	1.25
Bromelia	2.75	Methyl cinnamate	3.75
Cinnamic acid	2.40	Methyl eugenol	5.00
Cinnamic alcohol	8.00	Methyl indole	2.00 gm.
Citral	3.25	Methyl isoeugenol	7.00
Citronellol	-	Methyl p-cresol	18.00
Ethyl cinnamate	4.00	Methyl phenyl acetate	9.00
Ethyl phenyl acetate	9.00	Phenyl ethyl acetate	36.00
Ethyl salicylate	1.50	Phenyl ethyl alcohol	27.00
Eugenol	2.00	Phenyl ethyl benzoate	65.00
Geraniol	4.00	Phenyl ethyl formate	38.00
Geranyl acetate	5.50	Phenyl ethyl phenyl acetate	65.00
Geranyl formate	11.00	Phenyl ethyl propionate	64.00
Heliotropine	1.90	Rhodinol	18.00
Ionone	36.00	Rhodinyl acetate	22.00
Ionone D	30.00	Rhodinyl formate	24.00
Ionone E	50.00	Santalol	8.00
Isobutyl benzoate	3.00	Yara Yara	3.50

About 1908 Van Dyk & Company began making the fatty aldehydes and alcohols for the first time in America. An advertisement listing their prices on these new items appeared in the March, 1911 issue of the American Perfumer.

Heptaldehyde	$ 3.00 oz.	Heptyl alcohol	$ 2.50 oz.
Octyl aldehyde	15.00 "	Octyl alcohol	15.00 "
Nonyl aldehyde	20.00 "	Nonyl alcohol	15.00 "
Decyl aldehyde	24.00 "	Decyl alcohol	15.00 "
Lauric aldehyde	20.00 "	Lauric alcohol	12.00 "

The following year, Synfleur was advertising hydratropic aldehyde at $65.00 a pound.

As the number of synthetics increased, more and more perfume compounds based on them were placed on the market. There was fierce competition between the imported materials and the American made products.

Nevertheless, the major portion of the synthetic aromatics used by the industry was imported rather than of local origin. Several American firms were very active in the manufacture of finished specialties both in the perfume and flavor fields. Although the growing list of new discoveries gave an advantage to the European houses, the American companies were able to import newly discovered raw materials or prepare them in small quantities in their own laboratories. The consumer had the choice of a range of perfumery specialties manufactured in America shortly after the turn of the century. In the years immediately prior to World War I the number of aromatics used by the industry increased substantially while the prices remained steady. To be continued in December issue.

See Working Formulas as explained on Page 2. New Goods and New Prices, page 20.

January, 1911. **Export Net Wholesale List.**

See Novelties Below. See Terms on Page 4.

See Publications, New Formulas, etc., on Page 2.

(Formulas of interest to all Manufacturers)

Synthetic Oil of Rose for all perfumery and flavoring purposes. Exquisite quality.
$32.00 lb., $16.00 ½ lb., $9.25 ¼ lb., $2.25 oz., $70.40 per Kilo.

Always consult latest Price List. We sell to manufacturers direct. Prices absolutely net. We have no salesmen. Order goods direct. We prepay express in U. S. and Canada, as per terms on Page 4. See Export Terms, on page 4.

Synfleur

REG. U. S. PAT. OFF.

Flower Oils

Perfume Materials, Colors, etc.

For Perfumers, Soapmakers, Manufacturing Chemists, Manufacturers of Toilet Articles, Cosmetics, Colognes, Proprietary Preparations.

Synfleur Fruit Oils, Vanilla Materials, etc. For Manufacturers of Confectionery, Candy, Chocolates, Crackers, Ice Cream, Bakers' Supplies, Flavoring Extracts, Bottlers' Supplies, Cordials and Liqueurs. All our flavoring materials, Fruit Oils, Vanillodeur, Vanilline, Cumarine, are absolutely pure, perfectly harmless, suitable for any food product and all our Flavoring Materials are fully

Guaranteed by Synfleur Scientific Laboratories under the U. S. Food and Drugs Act June 30, 1906. As per guarantee on file with the Secretary of Agriculture, Washington, D. C. Serial Number 1649.

Synfleur Research Laboratories

Publishers SYNFLEUR HERALD—Manufacturing Hints and Working Methods—containing "Tales from Experience." Edited Personally by ALOIS VON ISAKOVICS. See List of Publications on Page 2. SYNFLEUR HERALD, Synfleur Bulletin — Copyrighted Articles, Leaflets, etc.

The Lilac of Distinction Sweet and flowery for all Perfumery purposes, Creams, etc.
$17.50 lb., $9.75 ½ lb., $4.50 ¼ lb., $1.50 oz., $38.50 per Kilo.

Twentieth Century Materials for Progressive Manufacturers

See Novelties and Additions:

ALMOND BLOSSOMS. Magnificent Almond Flower effects for Toilet Articles.
AROMOL. Flavor, Perfume and Antiseptic. See page 20.
BERGAMOT BLANC. Extra fine Bergamot for finest Perfumes. Colorless.
GERANIUM LEAF. Cheaper than Geranium Oil. Very sweet.
JACINTHE. Phenylacetic Aldehyde 50%. (Keeps better than the 100%.)
MELILOT. SWEET CLOVER. Very sweet and powerful Perfume Oil. Similar in odor to Cumarine, but five times as powerful.
MUGUET BLANC. For Lilac effects.
WALLFLOWER. Most delightful Perfume Material. Very sweet.
WILD CHERRY. Added to list of Flavor Oils, page 19.
ADDITIONS TO LIST:—Sixteen constituents of flower oils. See page 20.

See reduced prices on page 20 due to large increase in consumption.

SYNFLEUR SCIENTIFIC LABORATORIES, MONTICELLO, NEW YORK, U. S. A.

State of the Union

America is still a free country. Here, if you don't like the weather, you can move to another place and not like it there . . . America has most of the wealth, the most trouble, and the greatest future; but the worst trouble with the future is that it seems to get here quicker than it used to . . . There are now about 4,200,000 businesses in operation, a million more than ten years ago; and new firms are cropping up every day . . . Consumer spending is at a new high, Americans are expected to spend about 14 billion dollars more this year than last.

Ring Door Bells

Get out and ring doorbells is the outcry of today's business leaders. The National Association of Direct Selling Companies has just published a study of the field called "Merchandise Distribution by Direct Selling." It is a compilation of facts and history of the industry and includes an article by Dr. Albert Haring. Dr. Haring's article points out that 71 per cent of the direct sellers surveyed own their homes, 77 per cent attended high school and 28 per cent attended college. Available: Banner & Greif, 369 Lexington Ave., New York 17.

DR. KURT KULKA*

The Preparation of Aromatic Aldehydes VIII

Benzaldehydes from Aromatic Halides

1. Benzaldehydes from Benzal Halides

The preparation of benzaldehydes by hydrolysis of benzal halides proceeds in two steps:

a) Halogenation of a methyl group attached to an aromatic ring:

$$ArCH_3 + 2\ Cl_2 \rightarrow ArCHCl_2 + 2\ HCl$$

When this reaction is carried out at elevated temperature and with exposure to a source of ultraviolet light, halogenation in the ring is minimized.

b) Hydrolysis of the dichloromethane group to the aldehyde:

$$ArCHCl_2 + H_2O \rightarrow ArCHO + 2\ HCl$$

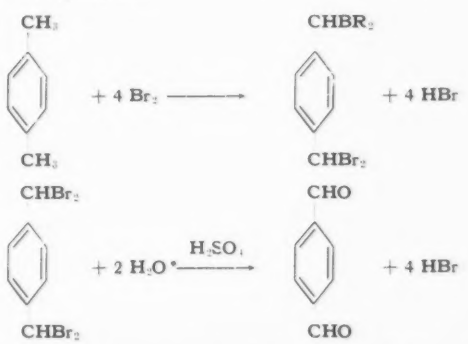
This reaction is carried out in the presence of a basic or acidic catalyst, sometimes under pressure.

Benzaldehyde has been prepared in large quantities by hydrolysis of benzalchloride. Benzalchloride is obtained by the chlorination of toluene:[130]

80 g. of benzalchloride, 500 g. of water and 150 g. of precipitated calcium carbonate are refluxed for 4 hr., and then steam distilled. The yield is approximately 80%.

By this procedure a product containing a small amount of chlorine in the ring is obtained. To obtain a halogen-free product, acceptable as a flavoring agent, either the benzalchloride or the benzaldehyde must be further purified. For this reason, most of the benzaldehyde used in our industry is produced directly from toluene by vapor phase oxidation.

Bromination of an aromatic methyl group, and hydrolysis of the resulting halogen compound to the aldehyde under acidic conditions, was described by Snell and Weissberger[131] in the preparation of terephthaldehyde from *p*-xlyene:



α,α,α',α'-tetrabromo-*p*-xylene is prepared by adding 708.8 g. of dry bromine to 100 g. of dry xylene at 140-160°C. in direct sunlight or an artificial bright light. 84.3 g. of the tetrabromo-*p*-xylene are finely powdered and placed together with 200 cc. of 95% sulfuric acid in a reaction flask, which is heated to 70° C. A stream of air is passed through a capillary tube for the rapid removal of the hydrogen bromide formed. As soon as the evolution of the gas diminishes, the temperature of the heating bath is gradually increased to 110°C. After approximately 2½ hr., gas evolution will cease, and a clear solution result, indicating the end of the process. The reaction mass is poured on ice and recrystallized from 10% methanol. Yield amounts to 81-84%.

Starting from *p*-xylene, Sabetay[132] prepared two interesting aldehydes:

*Fritzsche Brothers Inc.

b_{16} mm. 125°C.
strong floral odor

CH_2OCH_3

p-methoxymethyl benzaldehyde

b_{14} mm. 133-134°C.
pronounced fruity aroma

$CH_2OC_2H_5$

p-ethoxymethyl benzaldehyde

Bromination of *p*-xylene at 140-150°C. yielded α,α,α'-tribromo-*p*-xylene:

$CHBr_2$

CH_2Br

Refluxing this compound with an excess of sodium ethylate in absolute alcohol yielded the diethyl acetal of *p*-ethoxymethyl benzaldehyde:

OC_2H_5
CH
OC_2H_5

$CH_2OC_2H_5$

Hydrolysis with aqueous sulfuric and acetic acid at elevated temperature yielded *p*-ethoxymethyl benzaldehyde.

By using an excess of sodium methylate in absolute methanol on α,α,α'-tribromo-*p*-xylene, a liquid (b_{16} 122-123°C.) was prepared:

OCH_3
CH
OCH_3

CH_2OCH_3

dimethyl acetal of p = methoxymethyl benzaldehyde

On hydrolysis this compound yielded *p*-methoxymethyl benzaldehyde.

2. The Sommelet Reaction

This reaction consists in the formation of an aromatic aldehyde by the interaction of hexamethylenetetramine on an aryl methyl halide. The resulting addition product is then hydrolyzed to the aldehyde:

$$ArCH_2X + C_6H_{12}N_4 \rightarrow RCH_2(C_6H_{12}N_4)X \xrightarrow{H_2O} ArCHO$$

The reaction was first described by Sommelet in 1913.[133] At that time the exact reaction mechanism was not understood, and the variety of by-products obtained in the reaction (such as ammonia, mono-, di-, and trimethylamine and benzylamine) remained unexplained.

In the original Sommelet reaction, the reactants were used in molecular proportions with dilute alcohol as the solvent. The reaction was conducted under reflux over a period of 2-6 hr. The aldehyde was liberated from the reaction product by steam distillation.

Example

An example of this original technique is the preparation of *o*-tolualdehyde:

To a mixture of 60 g. of *o*-bromomethyl toluene and 250 cc. of ethanol, are added 48 g. of hexamethylenetetramine and 50 cc. of water. After approximately 5 min., 200 cc. of water are added and the reaction mixture refluxed for 2 hr. The aldehyde is obtained in a yield of 70% (27 g.) by steam distillation of the reaction mass.

In a similar way *p*-tolualdehyde was prepared from *p*-chloromethyl toluene in a 60% yield, and another important aromatic aldehyde (cuminaldehyde) from *p*-chloromethyl cumene.[134]

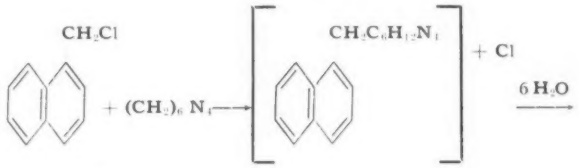
The Sommelet reaction was later investigated by Angyal and co-workers,[135] who cleared up the question of the reaction mechanism and found that the quaternary salt formed in the first stage of the reaction is hydrolyzed to the aryl methyl amine, which undergoes dehydrogenation to the imine. On hydrolysis the aldehyde is formed:

$$ArCH_2NH_2 \rightarrow ArCH{:}NH \rightarrow ArCHO$$

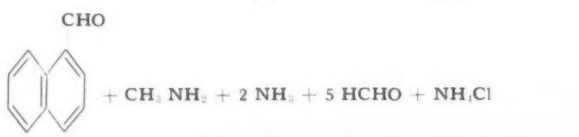
Dilute acetic acid has been found to be one of the best solvents in this reaction, and an excess of hexamethylenetetramine is necessary for best results.

Example

An example of this improved procedure is the preparation of l-naphthaldehyde (Angyal et al.[136]):



CH_2Cl + $(CH_2)_6N_4$ → $CH_2C_6H_{12}N_4$ + Cl ; $6H_2O$



CHO + CH_3NH_2 + 2 NH_3 + 5 HCHO + NH_4Cl

106 g. of l-chloromethyl naphthalene, 168 g. of hexamethylenetetramine, 250 cc. of glacial acetic acid and 250 cc. of water are refluxed for 2 hr. 200 cc. of concentrated hydrochloric acid are added and the reflux continued for 15 min. The reaction mixture is cooled and extracted with ether. The ether extract is washed with sodium carbonate solution, dried and distilled. The desired aldehyde distills in a yield of 75-85% (70-77 g.) at 160-162° at 18 mm.

Doukas[137] prepared 2-naphthaldehyde in an overall yield of 64% by N-bromosuccinimide bromination of 2-methylnaphthalene. The bromomethyl compound was reacted with hexamethylenetetramine in chloroform solution. The resulting crystalline hexamonium bromide was separated and hydrolyzed with 50% acetic acid to the aldehyde.

Reactivity of the chloromethyl or bromomethyl group: An electron-attracting substituent in the ring decreases the reactivity of the chloromethyl group, resulting in a

lower yield and a lower reaction rate. A chloromethyl or bromomethyl group flanked in both *ortho* positions by alkyl groups becomes completely inactivated.

Remarks: A prerequisite in the Sommelet reaction is the presence of a reactive chloromethyl or bromomethyl group. Such a group can be incorporated on the aromatic ring by various methods; for example:

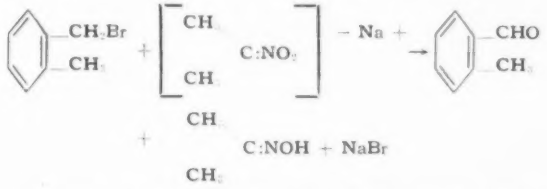
a) partial chlorination of an aromatic methyl group;

b) reaction of a primary alcohol ($ArCH_2OH$) with thionyl chloride;

c) chloromethylation.

The last procedure, also known as the Blanc reaction, is discussed by Fuson and McKeever.[138]

A reaction similar to the Sommelet reaction, and generally useful for the preparation of substituted benzaldehydes from benzyl halides, was recently developed by Hass and Bender.[139] Its application will be described on the preparation of *o*-tolualdehyde. It proceeds thus:



To a solution of 11.5 g. of sodium in 500 cc. of absolute alcohol are added 46 g. of 2-nitropropane and 92.5 g. of *o*-xylyl bromide. The reaction mixture is agitated at intervals of 4 hr. The reaction is exothermic, and during its progress sodium bromide precipitates. After completion of the reaction, sodium bromide is filtered off and the alcohol removed by distillation. The sodium bromide is returned to the residue, to which 150 cc. of water and 150 cc. of ether are added. The ether layer is separated, washed with 10% sodium hydroxide solution (to remove any acetoxime and excess 2-nitropropane). After washing with water and drying, the reaction product is fractioned and yields 41-44 g. (68-73%) of *o*-tolualdehyde, b_{6} 68-72°C.

3. Oxidation of Aromatic Chloromethyl Compounds

Oxidation of aromatic chloromethyl compounds with sodium or potassium bichromate in alkaline solution is described by Blanc:[140]

$$3\ ArCH_2Cl + Cr_2O_7Na_2 + NaOH \longrightarrow 3\ ArCHO + 3\ NaCl + Cr_2O_3 + 2\ H_2O$$

These equations are not completely accurate, since actually mixtures of oxides of chromium are formed.

In the reaction, sufficient alkali must be present to neutralize the free chlorine as sodium chloride. An excess of bichromate can be used. Yields up to 90% of the theoretical are obtained.

The preparation of *p*-tolualdehyde from *p*-chloromethyl toluene is an example of the process:

41 g. of *p*-chloromethyl toluene, 30 g. of sodium bichromate, 6 g. of sodium carbonate, and 150 cc. of water are heated to reflux under agitation, until all of the chloromethyl compound has reacted. This requires about 20 hr. The aldehyde is then obtained by steam distillation of the reaction mass.

4. Benzaldehydes from Aromatic Methyl Halides and Alkali Metal Salt of an Organic Peroxide

This process, described by Campbell and Coppinger,[141] proceeds thus:

$$ArCH_2Cl + (CH_3)_3COOK \rightarrow ArCHO + (CH_3)_3COH + KCl$$

In the course of the reaction, benzyl tertiary butyl peroxide is probably formed as an intermediate, and decomposes to the aldehyde.

The advantage of this process is its specificity for the oxidation of the halomethyl radical; other side chains, such as alkyl groups, are not attacked.

The reaction is preferably conducted at 25-100°C.

By this process, mesitaldehyde (2,4,6-trimethyl benzaldehyde) is obtained in a 58% yield in the following way:

To 16.9 g. of 2,4,6-trimethyl benzylchloride dissolved in 100 cc. of methanol, are added 12.8 g. of the potassium salt of tertiary butyl hydroperoxide. The reaction mass is refluxed for 5 hr. and the aldehyde obtained by fractionation in a 58% yield.

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G. E. to Battle for Fair Trade

General Electric Co. will continue to battle to enforce fair trade. William H. Sahloff, vice president and general manager of the Housewares and Radio Receiver division in a formal statement said: "We intend to maintain our fair trade policy as long as (1) no better system is available; (2) sufficient states maintain effective fair trade laws to make it feasible as a national program; and (3) as long as the great bulk of our dealers and distributors continue to support our policy."

A fair policy is made necessary he said by four unfair methods of competition. 1. Loss leader selling—all cut price promotions designed to attract store traffic rather than sell the advertised item. 2. Selling near acquisition cost by grocery chains, providing the customer first purchases stated quantities of groceries. 3. Baiting prospects with well known brands and then switching them to little known models priced exorbitantly. 4. Attempts by the would-be monopilist who figures that, by beating the other fellow's prices, he can capture all his business.

What is Public Relations?

Public relations is the business of communicating with people to create a favorable climate of thought in which to sell a product, a company or an idea. It does this by creating a desirable, believable image to the correct "publics" on a continuing basis.

In the specific world of industry, public relations humanizes and dramatizes a business so that the "public" will come to know and respect that business, its policies and its products.—*Public Relations Board.*

A view in the courtyard at Valere Castle, Sion, Switzerland

Andre Firmenich, M. G. deNavarre and Dr. Max Stoll at the cocktail party at Andre Firmenich's estate, Creux-de-Genthod

Pictorial

As described by Maison G. deNavarre in his chatty and interesting account of the European trip of a group from the Society of Cosmetic Chemists in this country which appeared in the October issue, one of the highlights was a visit to the historic and charming home of Andre Firmenich, Creux de Genthod. The beautiful chateau with its gardens and view of Mt. Blanc, through the courtesy of Mr. Firmenich, was the residence of President Dwight D. Eisenhower when he attended the historic Summit Conference of World Leaders in Geneva. The tour will long be remembered by those who attended the international technical conferences in Geneva, France and England where knowledge on developments in cosmetic science were freely exchanged as well as for the warm hospitality that was extended by European leaders in the industry to the group. It is hoped that the United States may some time be the host to the leaders in cosmetic science abroad.

▼ Part of the S.C.C. group at the reception given by the authorities of the City of Geneva

Enjoying British S.C.C. hospitality are, l to r, Col. Reggie Carter, Dr. Middleton, Alan Bell and Dr. Murray Berdick

Chatting at British S.C.C. Buffet, l to r, M. G. deNavarre, Marietta deNavarre, Ellen Alice Wynne, Freddie Wells and Baron Langley

Encore of S.C.C. Tour

Dr. and Mrs. J. Sfiras, Mrs. M. G. deNavarre, Mrs. E. Coneybear, M. G. deNavarre and Ted Coneybear at SFC Banquet on Ted's birthday

International group from France, Spain, Italy and Switzerland attending Federation meeting in Paris

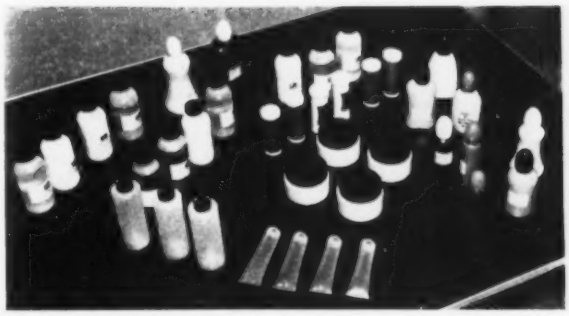
Below, some of the French Principals, with Jack Pickthall and Mr. and Mrs. L. Schmuck

Drs. Wheatley and James discussing Dr. Wheatley's forthcoming trip

M. G. deNavarre, Mrs. deNavarre and Dr. L. Salfeld in Brighton

From left to right, Dr. H. Friedrich, Dr. Baudu, Dr. Vidal in Paris

International Principals who discussed S.C.C. Federation in Paris



A group of cosmetic and perfume containers used for packaging purposes in the D&O Cosmetic and Aerosol Testing Laboratories; made from polyethylene and polystyrene. Group includes a number of anti-perspirant sticks, after shave sticks and stick colognes, and purse-size aerosols in various shapes and colors.

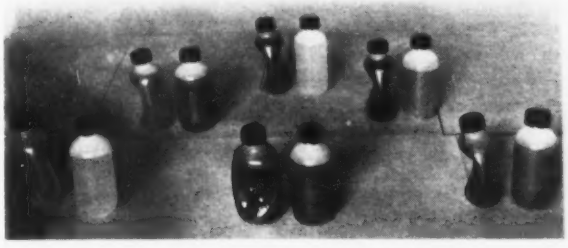
Use of Polyethylene Containers For Perfumed Products

Last year saw the production of plastics in the United States pass the four billion pound figure for the first time in its 88 year old history. This represented an increase of 10% over 1955, with another 5% estimated for 1957. Of this increase, polyethylene and polyesters lead the way with a respective growth of 30% each. Estimated 1956 production for polyethylene was 541,128,000 lbs. and indications are that this particular plastics raw material will continue to increase as more and better applications are found for its flexible properties.

One of the most important uses for polyethylene is in the packaging industry . . . where it is estimated that about half of all currently produced eventually finds its way . . . and it has been of particular interest, for some time, to the cosmetic industry due to its light weight, flexibility and unbreakable characteristics. In spite of these advantages, however, polyethylene possesses one quality which limits its application in many instances and has necessitated considerable research before it could be recommended for a number of products. Its high absorption and permeability rate for many materials, including perfumes, has been an outstanding obstacle to its more general use by the cosmetics and toilet goods industry.

Stability Studied

In an industry where product stability and shelf-life are all important, it soon became evident that a thorough investigation of cosmetic and perfume raw materials in polyethylene containers would be required before they could be universally adopted as packaging mediums for such products. The Perfume Department of Dodge & Olcott Inc. decided to undertake the task of studying the permeation rate of its entire repertoire of perfume components and compositions. This work, carried on under the direction of Herbert Kainik, D&O perfume consultant, resulted in the accumulation of data concerning raw material weight loss and container deformation and enabled the D&O perfumers to develop fragrances which could be recommended to the cosmetic and toilet goods industry for use in polyetheylene packaged products.



No. 1—Before and after photos of essential oils left for one year's time, at room temperature, in polyethylene containers. Center bottles contain Vetivert Bourbon. The others, reading from left to right, contain: Oil Clary Sage; Oil Sandalwood East Indian; Oil Lemongrass Redistilled; Oil Clove U.S.P.; and Oil Spearmint N.F.

Results of the Tests

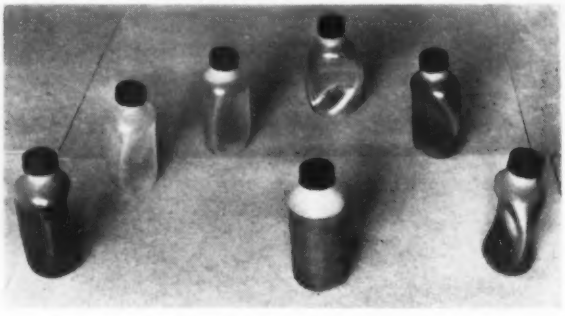
After a full year of testing more than 300 different perfume materials the following results were obtained. Aromatic raw materials were found to permeate through unlined polyethylene containers in percentages ranging from between 2% and 90%. The tests were conducted by weighing 100 gram portions of each aromatic raw material in a polyethylene container of specification Bakelite D.E. 2400. The containers were stored at room temperature for one year, during which time they were weighed weekly and checked for weight loss or gain, container distortion, and odor change of the perfume material.

Some of the essential oils suffered exceedingly high rates of weight loss. Prominent in this group are the citrus oils, which experienced weight losses from 20% to 90%, depending upon the specific oil. However, the corresponding citrus terpeneless oils showed very low

rates of weight loss, ranging from 1% to 4%. Terpeneless oils have much more strength and are of greater solubility than natural essential oils. They do not deteriorate as readily as the latter and therefore better withstand exposure to the air or subjection to heat. Those tested included bay, bergamot, cassia, cedarwood, clove, coriander, geranium, ginger, lavender, lemon, lime, orange, peppermint, petitgrain and spearmint.

Before and After Photos

The photographs shown were taken to illustrate the effect of a number of essential oils on polyethylene containers after a year's storage at room temperature. In photograph No. 1, the oils are shown, side by side, in the container as it first appeared and the container after a year's storage. The bottles contain the following essential oils: center; Vetivert Bourbon; then reading from left to right: Oil Clary Sage, Sandalwood East Indian, Lemongrass Redistilled, Clove U.S.P., and Spearmint N.F. Photograph No. 2 shows these oils in the same order, but only the deformed bottles, with a center container in perfect condition to illustrate degree of deformation during the year's storage.



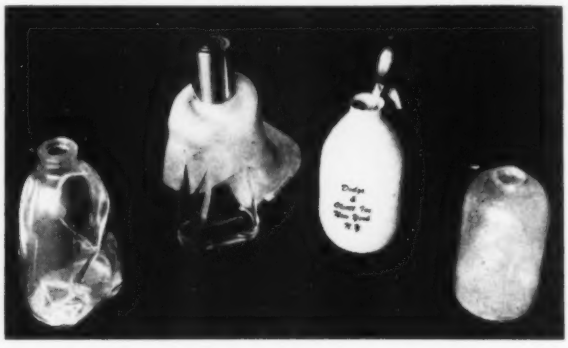
No. 2—In the center is shown a polyethylene container as it appeared before the testing period. Other containers show deformation that occurred during a year's storage at room temperature. Reading from left to right the bottles contain: Oil Vetivert Bourbon; Oil Clary Sage; Oil Sandalwood East Indian; Oil Lemongrass Redistilled; Oil Clove U.S.P.; and Oil Spearmint N.F.

Conclusions

The results of the tests lead to the following conclusions. From the perfumer's practical standpoint, oils high in terpenes experienced the greatest weight loss, while those oils of high viscosity and low terpene content experienced very little, or no weight loss at all. In this latter group may be mentioned Oil Bois de Rose; Oil Cassia Rectified; Oil Citronella Java; Oil Coconut Edible, N.F.; Oil Geranium Algerian; Oil Lignaloe Wood, Mexican; Oil Patchouly Penang; Oil Sesame U.S.P.; Oil Vetivert Bourbon; Oil Ylang Ylang; and Oil Almond Sweet Expressed, U.S.P. From this information it was then possible for the research perfumers to develop fragrance compounds capable of use in cosmetic products such as antiperspirant sprays, creams, lotions and shampoos that were to be packaged in polyethylene containers.

Aerosol Packaging

Another important use for polyethylene in the cosmetic, perfume and toilet goods industry is in the aerosol field, as a protective coating for glass bottles. Glass containers use an ultra-low pressure propellent such as dichlorotetrafluoroethane, in which the dispensing pressure is in the range of 10 to 18 pounds per square inch gage at 70°F. The glass bottles with plastic coating have undergone rigid safety tests for such low pressured aerosols and are now in use by many cosmetic, pharmaceutical and chemical specialties firms. There are many advantages to be gained by their use, one of the most important being elimination of problems of contamination or decomposition due to corrosion. Many pharmaceutical and cosmetic products, which could not be converted to aerosols in metal containers are now being packaged in one of the new plastic coated glass forms which combine safety with greater sales appeal. In the D&O Aerosol Testing



No. 3—Four different plastic coated glass aerosol containers showing effectiveness of fragment containment after having been experimentally broken in the D&O Aerosol Testing Laboratory.

Laboratory a number of tests have been made with dropping the plastic coated bottles, in an effort to determine their durability and the ability of the plastic coating to contain broken particles of glass. One bottle was dropped 25 times from a height of four feet and did not break. The same bottle was then pitched against a steel safe from a distance of 15 feet. After the third pitch, it finally broke; however, the glass did not fly into the air but instead the fragments remained within the plastic coating which was still intact, while the gas itself escaped through small vent holes in the plastic. These containers are available today in various shapes and many special designs can be moulded. Transparent, translucent or opaque plastic in a wide range of colors is available. While polyethylene, alone, has also been considered as an aerosol container and would be excellent from many points of view, the material is permeable to fluorinated hydrocarbon propellents and, therefore, could not contain pressures. Other plastic materials, however, are being used today including the melamine container and the newly available "Zytel" nylon resin packages. Photograph No. 3 shows four different plastic coated glass containers that were broken, experimentally in the D&O Aerosol Testing Laboratory for the purpose of determining the effectiveness of fragment containment. As is illustrated, although each bottle shows damage in a different way . . . in no instance did flying glass represent any kind of safety hazard.

The use of polyethylene as a packaging material in the cosmetic, perfume and toilet goods industry will undoubtedly increase as the various difficulties presented are worked out. A second series of tests with aromatic raw materials will soon be undertaken using both lined and unlined polyethylene containers. The results will be mutually beneficial to cosmetic manufacturers, perfumers and container producers.

Photo courtesy DuPont Company

Developments in Aerosol Production

Dr. EGON G. HONISCH*

A number of articles have been published, dealing with the physical and chemical problems of the aerosol industry. The present is not to be considered a repetition of such expositions, inasmuch as it restricts itself exclusively to technological problems..

The fluid to be sprayed from the aerosol container may be either a pure propelling agent such as ethyl chloride, used in dentistry, or else it consists of a mixture of some active ingredient together with one or more propellants. Only in rare cases does the active ingredient consist of one substance solely; as a rule it is a composition of carefully blended substances. Such substances may be either liquid or solid, soluble or insoluble in the propellant. In the case of an insecticide, for instance, the substances composing the active ingredient are soluble in the propellant. In the case of a powder aerosol the active product, talcum for instance, is not soluble in the propellant. Thus, such a powder aerosol consists in its simplest form of powder, talcum for instance, and a propellant, Freon 11/12 or Frigen 11/12 for instance.

Consequently it is the task of the producer to so fill the propellant into the aerosol container, and to so seal the latter with a suitable valve, that an "Aerosol" is effected in the technical sense, viz. the combination of container, valve and contents. For the carrying out of these working operations, quite a number of ingenious devices have been constructed both in America and in Europe, based on methods which differ.

The following is the order of succession in the working operation for the refrigeration process:

1. The active ingredient is put into the container.
2. The deep-cooled propellant is put into the container.
3. The container is sealed by means of the aerosol valve.

The pressure filling process works as follows:

1. The active ingredient is put into the container.
2. The container is sealed by means of the aerosol valve.
3. The propellant is pressed into the container through the aerosol valve under high pressure.

During the earliest stages of American aerosol production there was one filling method, among others, that distinguished itself by utter simplicity. First the aerosol containers were filled with the active ingredient, for instance insecticide. The containers thereafter were placed into a refrigerator, there to be cooled to a point considerably below zero. The propellant was put into a receptacle with an open top which likewise was subjected to deep cooling by means of a mixture of carbonic ice from the outside, and on the inside by a cooling-coil connected with a refrigerating machine. For filling in the propellant, the procedure was as follows: a workman took one container from the refrigerator and ladled in the required quantity of propellant, then immediately the valve was put on and the fastening done by a device called "crimper." A method most simple, as mentioned above, yet it worked and the aerosol was produced.

However, the method lacked expediency and could not be satisfactory in the long run, especially since the operation involved considerable loss of the propelling agent. More serviceable equipments for the filling of aerosols in conformity with the refrigeration process quickly followed. All of these methods are based on the fact, that by the rapid cooling of the propellant, the evaporation process can be checked, and consequently the loss of propellant be kept sufficiently low to secure a way of filling that is economically just bearable. Where the refrigerator cannot be got down to the required low temperatures, it is impossible to achieve an operation that is in any way rational.

Deep cooling is necessary in general, not only for the propellant, but also for the active ingredient; and even the containers must be cooled if the weight of the quantity of propellant to be filled in, is considerably less than the weight of the container. This is a problem occurring particularly in the case of aerosol bottles being used. Normally, of course, the procedure is such, that

Photo courtesy Dodge & Olcott Inc.

*Technical director, Aerotom, A. G., Rapperswil, Switzerland. U. S. representative William A. Hoffman Inc.

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the active ingredient, as well as the propellant are being cooled separately and conveyed to separate filling stations. The filling apparatuses, as a rule, operate either on a dosage-pump principle, or else a time-release principle. In the case of the dosage-pump, a specific quantity of fluid is sucked in and then discharged into the aerosol container. In the case of the time-release system, the liquid propellant is put into a cooled receptacle in which the fluid is kept continuously on the same level by a float-gauge. An electronically controlled valve-gear opens and shuts off in accordance with a specific time-release, for instance every three seconds. Provided the equipment operates with precision, and the level holds the required line continuously, it might be expected that the quantity filled in will always be more or less the same. However, practice proved, that this is not the case absolutely, and that considerable tolerances must be allowed. A certain inertness of the electromagnetic valve-mechanism, a little fluctuation of the level owing to the natural inertness of the float-gauge, and even some difference in the specific gravity due to a change of temperature, are factors liable of causing such unpleasant tolerances.

The Aeratom Ag has developed a new method which works without a float-gauge and without electricity, using instead a pneumatic control, which does away with such disadvantages, and consequently operates on a high scale of accuracy with regard to the filling. Electricity of any kind no longer being applied, makes it possible, therefore, to fill inflammable gases, such as propane and Butane, without danger.

The refrigeration methods in general are suitable only for a very large production. They have the disadvantage of involving considerable loss with regard to the propelling agent, which amounts from 5 to 15%. Their advantage is the possibility of automatizing this method to a large extent, whereby the loss of propellant can be compensated by a reduction of wages. This, of course, has to be considered particularly by countries working on high wage scales and low purchase prices for the propellants. There the loss of propellant is only a secondary matter in view of the possibility of saving in wages.

In the case of the pressure filling method it is not necessary to cool the propellant. The refrigeration plant with its expensive installation also is no longer needed. The liquid gas is pressed into the aersol container by means of an absolutely tight system, viz. the aerosol valve. Although the pressing in is done partly under considerable pressure, it is not possible, of course, to attain the same filling speed as can be achieved with the refrigeration method in filling open containers. Nevertheless, in 90% of all European production and of similar cases elsewhere, this method is being adopted in preference to the refrigration process. The reasons for this are the following:

1. The loss of the propelling agent is so insignificant that it hardly matters. It cannot be compared at all with the considerable loss of propelling agent which the refrigeration methods involve. The propelling agent is an expensive item in Europe, consequently this is a deciding factor.
2. Expensive and complicated refrigeration plants with their equally expensive installations and insulations can be dispensed with.
3. Insulated and cooled containers for the propellant and for the active product are not needed. Cooling chests for containers and bottles also are not required. The operations throughout can be performed at an ordinary inside temperature, including the filling of the propellant. This gives the

possibility of changing over from one minute to the other from one product to another. In Europe serial productions of just a few thousand units, or even one hundred units are no exception.

The simplicity of the pressure filling method, therefore, offers a special advantage. For instance, if an insecticide has just been turned out wherewith Frigen 11/12 was used, and an Eau de Cologne should now be produced requiring Frigen 12/114, it will not be necessary to pump the Frigen 11/12 back into a tank, involving labour and loss of the refrigeration effected. Instead, the gas cylinder, or gas tank, simply has to be disconnected from the filling machine, and the other gas container connected in its place, a process requiring one minute or two. The filling can be continued without further loss of time. Moreover, special deep cooled containers for the active ingredient are unnecessary. Instead apparatuses have been constructed which suck the active product, for instance Eau de Cologne, from casks or whatever container it may be, and discharge it directly into the aerosol containers. For most of the small and medium producers, but even for many of the large plants the pressure filling method, therefore, is by far the more interesting, as well as practical process, compared with the refrigeration method. Incidentally the very considerable reduction of investment capital also plays an important part.

The European aerosol-machine industry originated in Switzerland. Due to the impracticability of adopting the large American producing methods for small and medium manufacturing centres, efforts have been made to develop equipments suitable to the prevailing conditions. Regardless of expense, and under tireless efforts the necessary research and experimentation in this field of industry has been carried through. There being no prototypes existing in USA or elsewhere, which might have been used basically, it meant the creating of a totally new equipment.

The rhythm: "Fill in the active product—put on and seal the valve—fill in the propellant" is maintained likewise in the case of the Aeratom machines. The active product, of course, could be filled in with any of the conventional filling devices. However, special machines have been constructed, with which it is possible to suck the active product from any kind of container, which operate pneumatically in order to avoid any danger of explosion. These so-called pre-filling machines can also be coupled with the valve sealing device which, for instance, permits the worker to fill in the active ingredient, and to fit the valve on to the container in one working operation. The machines working pneumatically, a compressor is needed for operating them. The latter should be installed in an adjoining room so as not to keep motors in the working place. Thus it is possible to handle inflammable gases, such as butane, propane, ethyl chloride etc. without danger. This is an advantage stressed too highly, since there are indications of a development favoring these inexpensive propelling agents on a larger scale than has been the case so far, to be used as admixtures with Frigen or Freon.

Let us review the working operation of this kind of plant:

The container, of whatever kind it may be, after having been thoroughly dusted by compressed air, in order to remove any particles of dust or dirt, will be filled in the first place with the active ingredient by means of the so-called pre-filling machine. This filling process is done in the most simple way, setting in operation a foot-valve which releases the pre-dosed quantity, pressing it into the aerosol container automatically. This done, the aerosol container is conveyed to the sealing machine, the so-called crimper. The valve is put on to the upper

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rim of the container, then the container, placed into the machine and the pneumatic foot-valve set in motion, will effect an absolutely tight fastening. The pressure effected between the rim of the container and that of the valve is equivalent to about $^{3}/_{4}$ of a ton, thus the best possible warranty is given for absolute durability of the valve cap. The suitable spreading tools are of a high precision make, and a practically uninterrupted crimped sealing-rim is the result.

Compared with other sealing machines, the Aeraton machines are claimed to bridge over any tolerance appearing on the container, normal or abnormal. It makes no difference whether the container be longer or shorter by a few millimetres, or the rim not in an exactly vertical line with the axis of the container. By combining two compressed-air cylinders, one for pressing the container against the spreading tool, and the other doing the crimping, the best security is assured for faultless sealing.

The container now holds the active ingredient, and the valve is sealed. The worker passes on the container to the working-partner operating the filling machine. Here too the processing is simple and proof against any kind of calamity. The Aeratom machines are made in two different forms. In one case the container is pressed against the so-called filling-head by means of a pneumatic lifting device while in the other case the filling-head is lowered to the container standing on the bottom-plate.

All the worker has to do is to operate a compressed-air valve, whereby the exact quantity of the propelling agent is pressed under considerable pressure into the aerosol container automatically. While the filled container is being removed from the machine, the dosage-cylinder again fills up automatically with the same quantity of propellant. Without any loss of time the machine is ready for the next operation. These machines with capacities ranging from 3,000 to 10,000 containers per day are available.

There is also a patented filling method. This test is made. We take a tumbler and hold it under the valve of a bottle containing, say Frigen 11/12. When the valve is opened, a certain amount of the propellant will flow into the tumbler, the larger part of which will evaporate immediately. Due to the cooling caused thereby, the remainder is subjected to the cooling process so strongly, that further evaporation is very slow, and it is possible, therefore, to observe the quantity of propellant remaining in the tumbler quite closely. The appearance of the liquid gas will resemble somewhat that of mineral water from which bubbles of carbonic acid are rising. Taking an injection-syringe, and trying to suck in some of the propellant, we observe that this cannot be done. The same injection-syringe that will suck-in water, or alcohol, or any other liquid without difficulty, will fail in this case. And why? It is due to the fact that the cooled propellant contained in the tumbler is in a condition of unstableness. It is a condition approaching the boiling point. The part below the liquidity level is liquid, whilst the part above this level is gaseous. In consequence of this an equilibrium has formed, which is dependent on the low temperature arrived at, and on the atmospheric pressure. Immersing now the injection-syringe into this fluid, and drawing up the piston, the equilibrium will be disturbed. The drawing up of the piston will cause a vacuum with the effect that immediately further volumes of vapour will form, filling the injection-syringe with vapour instead of with gas.

A similar problem has to be faced in constructing pressure filling machines. Should the attempt be made of sucking the liquid gas from the container directly into the dosage-pump, an inexact filling will result, viz. the cylinder will fill only partly with liquid, and the other part with vapour. If this contents of the cylinder is pressed into the aerosol container, a considerable underweight must of necessity result. This is the big disadvantage of all pressure filling machines that are working with one cylinder only. An American factory for pressure filling machines has tried to meet these difficulties by connecting a refrigerator with interchange of heat, between the gas container and the pressure filling machine. Thus the propellant has to pass first through the deep cooled heat-intercharger, getting cooled thereby, and will have a temperature when entering the cylinder, low enough to just allow the sucking into the cylinder without vapour forming. Aeratom has developed another, method. The liquid gas no longer is sucked into the pump, but pressed into the dosage-pump by means of a second pump, the so-called pre-pump, under a pressure of 15 Atm. There is consequently no suction stroke. The liquid propellant flowing-in under pressure, lifts the dosage-piston of the dosage-pump, and fills the dosage-cylinder exactly.

There is little difference between the production of aerosols in bottles or in cans. Instead of a crimper, a machine for rolling on the valve is required, is offered.

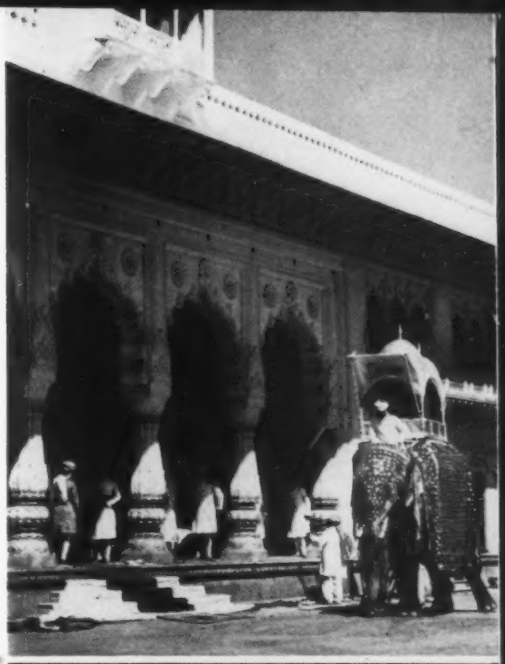
Previous to the process of rolling on, the valve itself is pressed on to the bottle under a pressure that can be set to a capacity of from 100 to 250 kilos. Therefore, once the rolling is done, a secure and durable sealing is warranted. The machine has been constructed so that it is possible to use it also for glass bottles with a coating of plastic, without risk of damaging the soft plastic coat in the rolling process. Any inaccuracies of the glass bottles, crooked necks and the like, are bridged over automatically by this method of sealing, without impairing the durability of the seal.

The filling and sealing of the containers concluded, there follows the testing in the hot water bath. The aerosol containers are placed there for a few minutes at a water temperature of 60° C. In the case of the pressure rising, even the most minute leakages of containers or valves will be noticeable by gas, bubbles rising from the water, and by this control any defective container can be sorted out.

"I know I've got dry skin; I use a towel!"

Tender Touch

This sweetly-scented composition has life, lift and exhilarating freshness. Its fragrance is distinctly floral—a brilliant bouquet modified with citrus and deftly accented with aldehydes. A warm, woody note lends interesting contrast, and suitable fixation assures uniformity of its original character at all stages of evaporation.



COUNTERPOINT

In this composition our perfumers have used a warm, woody effect with an unusual combination of spices to complement a bright, brilliant motif of rose, lilac and jasmine. A beautifully balanced, harmonious effect is the result. Delightful topnote; excellent fixation; moderately priced for perfumes, toilet waters and colognes.

SAMUM

An original and exotically beautiful fragrance—gentle and caressing, but potentially irresistible. It is warm and spicy with a balsamy, resinous odor complex and an underlying floral modification composed of carnation, orange flowers, jasmine and rose. In perfumes and toilet waters, its fragrance suggests elegance and refinement.

A PORTFOLIO of PERFUMES . . . . .

Here, briefly described, are six more outstanding fragrances offered for the consideration of discriminating perfumers. From this varied selection you may find just the type desired for your new line of extracts, toiletries and cosmetics. We invite your serious consideration of these exclusive offerings.

FRITZSCHE BROTHERS, Inc.

sindha

A soft-scented, alluring and exotic fragrance composed of tropical woods, gums and balsams, enhanced in beauty by the use of selected florals discreetly blended. Recommended for a luxury line of extracts, toilet waters and face powders.

HIGH WIRE

A breathtaking, beautifully balanced formulation for extracts, toilet waters, colognes, lotions and powders. This perfume is an attractive floral complex with warm, woody modification of its base. A faint suggestion of citrus-aldehyde gives it a pleasantly refreshing, somewhat heady topnote, while appropriate fixatives complete a formulation that is well rounded and enduring.

GIGOLETTE

Spirited and vivacious, this fragrance has the airy freshness of a French cologne. Here is a light floral bouquet with citrus-aldehyde topnote, nicely complemented by fullness and body from a faintly spiced, woody base. Recommended for economy in producing attractive, low concentration perfumes and toilet waters.

Test for Determination of Ketones in an Essential Oil.

Continuous improvement in the laboratory techniques employed in our quality control operations tends toward the goal of speedier and more accurate results. Even in so small a matter as *manual* vs. *mechanical* agitation of liquids—as in the test for determination of ketones in an essential oil, shown above—we use a magnetic stirrer which keeps the reaction under constant automatic agitation. Note, also, that a water bath surrounds each of the oil-containing flasks and that thus, by a simple system of emersion, heat can be *uniformly applied* at all points, to the materials under examination. It is true that, in itself, each is but a small detail. Nevertheless, if there is one thing experience teaches, it is that only through conscientious attention to such details can product perfection ever be reached. And that, of course, is FRITZSCHE'S ultimate goal.

FRITZSCHE *Established* 1871 *Brothers, Inc.*

PORT AUTHORITY BUILDING, 76 NINTH AVENUE, NEW YORK 11, N. Y.

BRANCH OFFICES *and* *STOCKS: *Atlanta, Georgia, Boston, Massachusetts, *Chicago, Illinois, Cincinnati, Ohio, *Los Angeles, California, Philadelphia, Pennsylvania, San Francisco, California, St. Louis, Missouri, Montreal and *Toronto, Canada and *Mexico, D. F. FACTORY: *Clifton, N. J.*

OH, NO! NOT THAT TONIC!

SINCE our little friend so pointedly rejects *"that"* tonic, it seems a fair assumption he has in mind some other medicine which is *not* objectionable. Truth is, he has. The big difference is this latter has a flavor much more appealing to his tender, sensitive taste. As a result of this, it is even more effective because patients take it *willingly* without complaint and *regularly* as prescribed. . . . Today, the proper flavoring of medicinal products is a highly specialized and very important field of endeavor, and we are rather proud that our Pharmaceutical Flavor Laboratory has had a pioneering and leading role in its advancement. On the strength of this rich experience, we should like to offer you its unlimited facilities for the study of flavor improvements that might well increase the acceptability of your medicinal product. Such work would be in strictest confidence and without cost or obligation until and unless we satisfied you.

For GOOD TASTE

in Pharmaceuticals *Consult* . . . FRITZSCHE *Established* 1871

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Composition of Onion Oil

Gas-liquid chromatography appears to indicate that di-*n*-propyl sulfide and methyl-*n*-sulfide are the major components of onion oil

MORRIS B. JACOBS, PH.D.

A paper on gas-liquid chromatography of the volatile components of onions presented by John F. Carson and Francis P. Wong of the Western Utilization Research and Development Division, Agricultural Research Service, U. S. Department of Agriculture, Albany, Calif., at a joint symposium on the progress of gas chromatography before the Divisions of Analytical Chemistry and Petroleum Chemistry of the American Chemical Society at the 132nd meeting of the Society held in New York City from September 8 to 13, 1957 appears to go a long way in the clarification of the composition of onion oil.

Semmler's Work

It is common to find in the literature that the flavor and odor of onions is ascribed to allyl propyl disulfide, CH_2:$CHCH_2S.SCH_2CH_2CH_3$, and the reference cited is F. W. Semmler, *Arch. Pharm., 230,* 434 (1892). Thus Frank A. Lee in Morris B. Jacobs, ed. *Chemistry and Technology of Food and Food Products,* (Vol. II, page 1214, Interscience Publishers, New York, 1951) makes such a citation. In a similar manner, Ernest Guenther points out, after noting that little is known concerning the composition of onion oil, that Semmler had isolated as a principal component a disulfide, $C_6H_{12}S_2$, boiling under reduced pressure, 10 mm. Hg, in the range 75-83 deg. C. with density at 12 deg. C. of 1.0234. This material on reduction with zinc dust gave a sulfide, $C_6H_{12}S$ which boiled at 130 deg. C. When the original material was reduced with hydrogen, a disulfide, $C_6H_{14}S2$, boiling under reduced pressure, 10 mm. Hg, in the range 68-69 deg C. (*The Essential Oils*, Vol. VI, page 71, D. Van Nostrand Co., Inc., Princeton, N. J.). Guenther does not identify the compounds as, for instance, allyl propyl disulfide, CH_2:$CHCH_2S.SCH_2CH_2CH_3$, or allyl propyl sulfide, CH_2:$CHCH_2SCH_2CH_2CH_3$, or dipropyl disulfide, $(CH_3CH_2CH_2)_2S_2$, respectively. He does mention that Semmler had made the observation that another sulfur-containing compound possibly identical with one of the high boiling components of asafoetida oil was possibly present in onion oil. Semmler did not find any allyl sulfide in onion oil.

In my paper, "Flavor components Containing Sulfur," which appeared in the *American Perfumer and Essential Oil Review* in June, 1946, I mentioned briefly that onion, *Allium cepa,* contains the sulfur compound allyl propyl disulfide and also noted that while allyl sulfide is said to be a component, it has not been proved to be present.

n-Propylthiol

In an article on the sulfur compounds of the genus, *Allium,* F. Challenger and D. Greenwood, *Biochem. J., 44,* 87 (1949), described their method for the detection of *n*-propylthiol in onions. In their method a slow stream of air was passed over freshly chopped onions and was then lead into an absorption tube containing mercuric cyanide. They identified the precipitate that was formed as mercury di-*n*-propylthiol.

Chromatographic Separation

Carson and Wong (reference cited above) isolated the volatile components of onions by steam distillation *in vacuo* with subsequent absorption of the volatile matter on activated carbon. The adsorbate was eluted with ether and the ether was stripped by use of a fractionating column. The oil was subjected to gas-liquid chromatography on a polyethylene glycol (Carbowax 1540) column, with an inside diameter of 4.6 mm., at 140 deg. C. The flow rate was 45 ml. of helium per minute. Peaks were obtained which showed a minimum of 16 different components.

Di-*n*-propyl disulfide, $(CH_3CH_2CH_2)_2S_2$, methyl-*n*-propyl disulfide, $CH_3S.SCH_2CH_2CH_3$, and dimethyl di-

GALLUP SURVEY REVEALS
FOR ANISE FLAVORING IN

Are You Overlooking Profitable Markets as Shown in This Nationwide Survey.....▸

There are many appetizing flavors on the market today, but here's one that appeals strongly to one out of every three adults in the U. S.

It's anise—made in this country under the name of anethole.

Anise, or the closely similar licorice taste, has a strong army of supporters—as shown by a recent Gallup Survey—to merit its use in many products where a variety of flavors is now offered.

Perhaps one reason why anise, in recent years, has been overlooked is the unreliability of supply of oil of anise from Red China.

Today, American-made anethole is available in full commercial quantities, meeting U.S.P. specifications. Manufactured under rigid quality controls, and from a plentiful domestic raw material source, anethole opens the way for you to include anise-flavored products in your line without worries over fluctuations in supply.

Ask your regular supplier for Hercules anethole or flavors based on anethole.

HERCULES POWDER COMPANY
INCORPORATED
Wilmington 99, Delaware

IN HARD CANDIES

IN CHEWING GUM

IN CAKES & COOKIES

This survey was conducted in March, 1957 by Audience Research, Inc. as part of its National Opinion Trends reports and is reproduced by permission of the Gallup Organization, Princeton, N. J. A total of 1,627 personal interviews, consistent with the distribution of the adult population, were conducted by trained Gallup Poll interviewers. Since "anethole" and "anise" are both terms unfamiliar to the majority of the American public, the flavor was first described as "licorice." When

HERCULES ANETHOLE

SUBSTANTIAL PUBLIC VOTE FOODS AND CONFECTIONS

44% WOULD LIKE

31% WOULD LIKE

30% WOULD LIKE

specific preferences in cakes, candy, and gum were asked, the respondent was told "there is a flavor called anise which resembles licorice . . . suppose the following products were made with a mild licorice flavor or anise taste?" Since it is recognized in the chemical industry that anethole, U.S.P., is equivalent to imported anise, and has been used for years, the findings of this survey on anise flavor preferences can readily be applied to anethole.

Further Facts from This Survey on Public Preference for Anise

- Nearly 34,000,000 adults (based on the estimated U. S. adult population of 103 million) are real fanciers. Also, another 16,500,000 adults like the flavor.
- A larger proportion is in the upper economic group.
- There is a slightly larger proportion of women than men fanciers.
- More younger adults than older persons say the anise flavor would appeal to them.
- Strongest regional areas of preference are the East and the West, and in communities of over 500,000 population.
- Those that like the flavor are strongly in favor of it!

NC57-1

HERCULES **ANETHOLE**

sulfide, $(CH_3)_2S_2$, were identified as components, with the first two being major components, by both chemical and physical methods. This work confirmed the work of Niegisch and Stahl, who reported in *Food Research, 21*, 657 (1956) that they had found di-*n*-propyl sulfide in onion oil.

Carson and Wong state that their finding of di-*n*-propyl disulfide, "corrects statements in the literature that allyl propyl disulfide is the major component." They also stated that several of the other peaks that they had found represented compounds that are known to contain sulfur but that they had not been able to establish the identity of these compounds.

They constructed gas-liquid chromatography columns from metal tubing 5 feet in length and 4.5 mm. in internal diameter that were coiled to fit into a Dewar flask containing a heating fluid. The design employed followed that described by K. P. Dimick (formerly with the Western Utilization Branch, Agricultural Research Service, U. S. Department of Argiculture, Albany 10, Calif.) and J. Corse. In their paper, Dimick and Corse mentioned that the volatile matter from onions and garlic were concentrated by using activated carbon to adsorb them with subsequent elution of the adsorbate with ether by a firm on a commercial scale (Gentry, Division of Consolidated Foods Corporation). Carson and Wong, however, used stainless steel, rather than copper, throughout their set-up.

The carrier gas, as mentioned, used was helium and the changes in the composition of the effluent gas were followed by employing a katharometer, that is, an instrument which is used to determine the composition of a gas mixture by the measurement of variations in its thermal conductivity. This katharometer was equipped with two filaments maintained at the same temperature as the column.

These investigators studied a number of liquid stationary phases with particular reference to their performance in the separation of aliphatic mercaptans, sulfides, and disulfides. Among those investigated were Apiezon M, Silicone SF 96-40, polystyrene glycol, octyl phenoxypolyethylene glycol, and polyethylene glycol (Carbowax). They found that for the separation of saturated from unsaturated sulfides or disulfides, octyl phenoxypolyethylene glycol and polyethylene glycol were the most appropriate and they used, as noted, polyethylene glycol as their liquid stationary phase in their analysis of onion oil.

Octyl phenoxypolyethylene glycol and polyethylene glycol were able to separate completely a mixture of dipropyl sulfide, allyl propyl disulfide, and diallyl disulfide at 140 deg. C. with no indication of decomposition. The retention times increased with the degree of unsaturation.

They found that with polystyrene glycol, the retarding of unsaturated sulfides and disulfides was less marked and that separation of the components of the mixture was not satisfactory. They also found that with Apiezon M or Silicone SF 96-40 the separation of saturated from unsaturated disulfides or sulfides was not complete and that in addition the order of emergence was reversed.

Physical and Chemical "Constants"

In comparison with his treatment of other essential oils, the treatment of oil of onion in Guenther's treatise is not extensive for only one and one-half pages is devoted to this material. This is due, Guenther points out, to the meager amount of information on this subject in the literature. He cites four analyses and all of them vary markedly. All four analyses are of onions of different countries.

Lee mentions that differences in pungency depend first on the variety and secondly on the soil type in which the onions are grown. Thus those varieties of onions that have the lowest moisture content have the greatest pungency and conversely those that have the highest moisture content have the least pungency. With respect to soil, onions grown on peat soil were about twice as pungent as those onions of the same variety grown on a sandy soil with onions grown on loam or a sandy loam having an intermediate degree of pungency. The amount of sulfur in the soil also had an effect on the pungency with those soils having more sulfur yielding onions of higher pungency.

Guenther gives the following "constants" for onion oil distilled from bulbs in the United States: Specific gravity at 15 deg. referred to 15 deg. C. 1.047 to 1.098; optical rotation +1 deg. 3 min. to +3 deg. 53 min.; refractive index at 20 deg. C. 1.5373 to 1.5588; acid number 12.0 to 19.8; carbonyl number (hydroxylamine hydrochloride method-1 hour) 9.8 to 15.1; iodine number (0.5 hour) 59.9 to 66.2; solubility, most oils not completely soluble in 10 volumes of 95 per cent alcohol. Occasionally soluble in 1 to 2 volumes and more of 95 per cent alcohol.

Increasing utilization of onion oil as a flavor ingredient will undoubtedly lead to more work on its composition and on the isolation of individual components. Gas chromatography will be a powerful tool in such work.

Flavor Notes

From time to time this section of *American Perfumer and Aromatics* has stressed the urgent need for more information on the toxicity of compounds and materials used as flavor ingredients. A step in this direction was taken by Bernard L. Oser, Myron Brin and Felix Oser of the Food Research Laboratories, Inc., Long Island City 1, N. Y. Oser and co-workers presented a paper entitled, toxicological screening tests of food flavoring compounds, before the Division of Agricultural and Food Chemistry of the American Chemical Society at its 132nd meeting held in New York City in Sept. 1957. These investigators put about 75 compounds into classes of similar functional groups such as aliphatic ethyl esters, aliphatic aldehydes, and the like. They designed experiments in which 5 to 6 compounds within a given group are subjected to a single test using dosages 100 times the expected human diet levels.

The use of glycerol for faster cooking was investigated by James Kanegis, Office of Technical Services, Department of Commerce, Washington, D. C., Brenda Kanegis, Hyattsville Jr. High School, Hyattsville, Md., and Roger Gilmont, Manostat Corp., New York, N. Y. They found that there was a possibility of introducing new taste values where sweetening was indicated by use of this process. They urged additional investigation in this field in their report before the American Chemical Society.

In another paper presented before the Division of Agricultural and Food Chemistry of the American Chemical Society on the volatile carbonyl compounds of cooked chicken, by E. L. Pippen, M. Nonaka, F. T. Jones, and Fred Stitt, of the Western Regional Research Laboratory, the compounds obtained by air entrainment were discussed. Sixteen chemicals, members of a family known as carbonyl compounds were definitely identified and at least two other chemicals were observed. Such compounds played a role in both flavor and off-flavor of chicken.—*M.B.J.*

Hydronal

PURE (−) HYDROXYCITRONELLAL

HYDRONAL is not a blended speciality base, but hydroxycitronellal pure and simple:

PURE because all physical imperfections have been removed by the most modern scientific means.

SIMPLE because HYDRONAL strikes only one note: the intrinsic odour of hydroxycitronellal—true, clear, and wholly delightful.

On first appraisal, the odour of HYDRONAL may seem a little subdued. This is solely due to the absence of discordant fatty or citronellal-like by-odours which have hitherto distorted the odours of commercial and even speciality grades. Once matured in a perfume compound HYDRONAL lacks nothing in strength and stability, and special packing under nitrogen ensures that it reaches the consumer in the same immaculate condition in which it leaves the plant.

To appreciate the true character of hydroxycitronellal and all its possibilities as a perfume component, a trial with HYDRONAL is essential.

ONE OF THE ABRAC PURE PERFUMERY CHEMICALS

ABRAC A. BOAKE, ROBERTS & CO LTD LONDON · ENGLAND

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Vanilla Beans, ready for picking

Balsams and Related Wood Essential Oils

Discussion of precursors of wood type aromatics

James J. Broderick

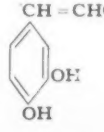
The balsams and their related aromatic wood essential oils are an important "octave" in the keyboard of the flavorist or perfumer. If a study of their composition is made with the objective to reproduce the balsamic tones—two facts became evident. First, certain "keys" are still unknown and second, there is a general type structure for aromatics found in wood or cellulose containing plants which may be helpful in the elaboration of some of the unknowns. Balsams and aromatic wood isolates contain cinnamates, phenols, vanillin, eugenol and other methyl ethers of phenols. It soon becomes obvious that the aromatics in wood contain a phenyl propyl structure or decomposition products thereof, with or without hydroxy, methyl or methoxy groups in the 3, and 4 and less often in the 5 positions. If one postulates that there is a common precursor for these products one may next consider the likely aromatics that have defied detection, to date.

Though wood is a complex material, it is, nevertheless, primarily cellulose in structure. In simplest terms cellulose can be considered to be a complex combination of hexose molecules joined by oxygen linkages. Wood also contains a small percentage of essential oil, coloring matter with an aromatic structure, sometimes alkaloids, etc. but these are usually degradation products. The aromatic material present in the largest percentage is the high molecular polymer, "lignin." Fortunately, the study of the properties and composition of lignin has been the subject of exhaustive investigation by the paper and wood industries and it is entirely possible that we can profit from their findings.

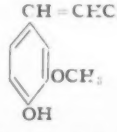
Origin of Lignin

As one studies the origin of flavors the focal point to which all roads lead, whether initially through fat, protein or other major components, is to the simple sugars. It has been pointed out[1] that most of the plant products that occur in nature on a large scale, e.g. cellulose, starch, gums, etc. are condensation products of simple sugars. Let us consider this approach for lignin.

Klason[2] as early as 1897, noted the occurrence of aromatics with the phenyl propyl structure and with functional groups in the 3 and 4 positions as degradation products of lignin and suggested 3,4 dihydroxy cinnamic alcohol as the precursor of lignin.



3,4 dihydroxy cinnamic alcohol



Coniferyl alcohol

He also proposed that it was derived from two moles of pentose.[5]

$$2C_5H_{10}O_5 \longrightarrow C_9H_{10}O_3 + +5H_2O + CO_2$$

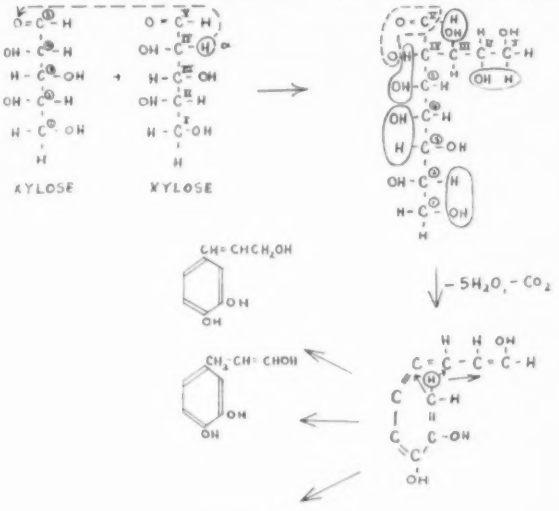
pentose — 3,4 dihydroxy cinnamic alcohol

In 1940 a group[3] investigating wood rot determined that the end products of the wood rotting fungus (*fungus Lentinus lepideus*) were methyl p-methoxy cinnamate, methyl cinnamate and an anisic acid ester (probably methyl).

methyl p-methoxy cinnamate

Several years later[4] it was shown that methyl p-methoxy cinnamate was formed by the action of the same fungus on glucose and xylose (wood sugar). It is known that wood rotting fungi can split off functional groups with relative ease; can readily add on methyl groups to acid or phenol radicals; and can replace other functional groups with the methyl group. In any given wood or plant there are a variety of enzyme systems that may act on a precursor to give a large number of end products.[6] The work on wood rotting fungi makes the proposal of Klason, which may have seemed far fetched when first proposed, at least plausible.

Considering possible mechanisms whereby xylose could be converted to methyl p-methoxy cinnamate or to a possible precursor, coniferyl alcohol, as suggested by Klason—it seemed most likely to form an aromatic structure by aldol condensation. The following "mechanism" (SCHEME 1) is shown as a possibility and is not



SCHEME 1

represented to be *the* mechanism. It is more likely that dehydration of xylose would precede condensation, as browning studies indicate.[7] [8] Amine or amino acid catalysts are also likely possibilities.

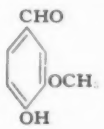
Scheme 1

The exact mechanism of formation is less important to the flavorist or perfumer than the probable results. For instance, since glucose also gave methyl p-methoxy cinnamate with wood rotting fungi it is possible that the actual mechanism may be through two or three carbon sugar fragments as found in maple syrup by Underwood, Lento and Willets.[9]

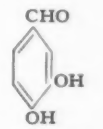
One Possible Precursor

If we were to assume for the moment that 3,4 dihydroxy cinnamic alcohol is the precursor to wood aromatics, can we fit it in with existing known facts? Styrax resin and essential oil contain cinnamic acid, cinnamyl cinnamate, phenyl propyl cinnamate, ethyl cinnamate, benzyl cinnamate, styrene (phenyl-ethylene) and vanillin.[10] Benzoin Siam is predominately coniferyl benzoate but also contains cinnamyl benzoate, benzoic acid and vanillin. The Sumatra variety is higher in cinnamates suggesting less oxidation of the allyl side chain and contains cinnamic acid, benzoic acid, vanillin, benzaldehyde, cinnamyl cinnamate and styrene among the many reported.

p-methoxy cinnamic aldehyde has been found in Levant Wormseed oil and other homologs are natural to essential oils.[11] But perhaps our best balsam, i.e., natural vanilla, is the most striking example of a product containing a variety of aromatics with the same basic structure that could indicate a common precursor. The bulk aromatic of natural vanilla is vanillin but is supplemented by cinnamic alcohol and aldehyde, protocathechuic (1,3,4) aldehyde, p-hydroxy benzaldehyde, vanillyl alcohol, etc. The Tahiti bean does not contain cinnamates but does contain anisic alcohol, aldehyde and acid.

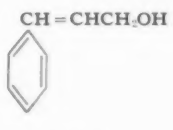


Vanillin



Protocathechuic aldehyde

p-hydroxybenzaldehyde

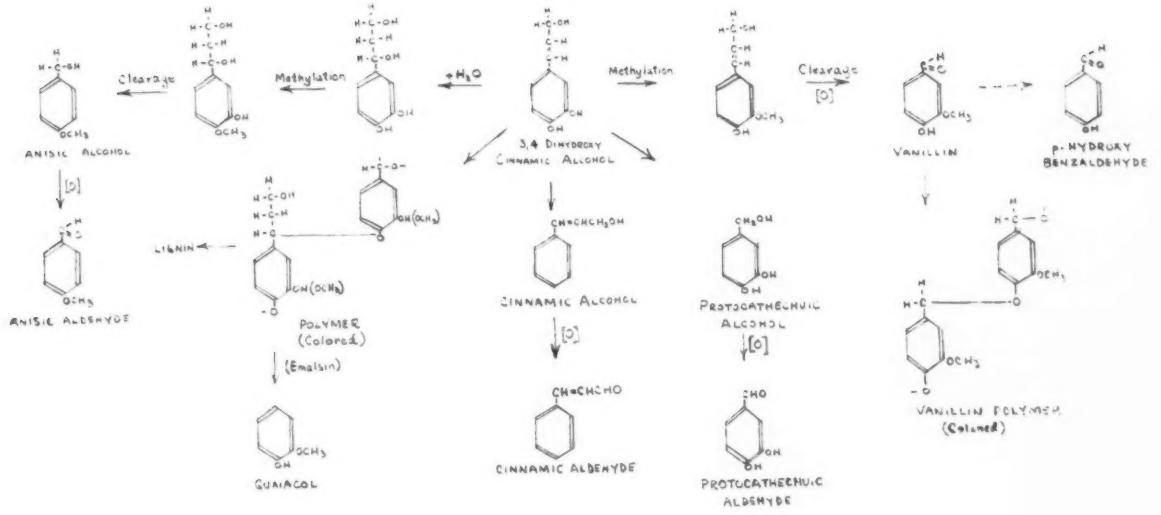


Cinnamic alcohol

Anisic alcohol

It was a study of similarities in the origin of vanilla and maple flavor that first called to our attention the possibility of a common precursor for wood type aromatics. Green vanilla beans and uncooked maple syrup have no brown color or characteristic flavor but develop both during processing. The color developed is not caramel but a resinous polymer of an aromatic nature. Coniferin has been suggested as the precursor for both products[12] [13] but this has been refuted in both cases[13] [14]. Vanillin has been identified in both products but whereas it predominates in vanilla it is not the characteristic aromatic in maple. Since the development of flavor in vanilla is primarily enzymatic whereas maple flavor is obtained by high temperature cooking, even a common precursor would be expected to give different end products. Nevertheless, before the cooking of maple sap, enzymatic activity is a necessary prerequisite for building up the maple flavor precursor. For example, starch is enzymatically broken down to a disaccharide. Maple syrup treated with emulsion yielded guaiacol. The true flavor of maple has been attributed to an unknown aldehyde, *similar to vanillin*, m.p. 74-76°C.[15]

It is possible to set up the following scheme



SCHEME 2

(SCHEME 2) to account for the various aromatics found in maple and vanilla as well as for the formulation of resinous colored materials.

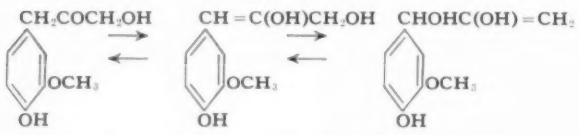
Scheme 2

The aldol condensation of pentoses (and less readily-hexoses) and its subsequent reactions, including polymerization, may be a clue to the flavor and color producing properties of some types of browning reactions. The above scheme can account for all of the aromatics found to date in vanilla and also for the formation of color and resins in both products. We leave it to your imagination to fill in the rather obvious additional aromatics that would be present if such an explanation were plausible. The extension of this idea to the balsams in general and to other aromatics derived from cellulosic sources is obvious—if we are first cognizant of a few additional facts.

Other Possible Precursors

Other and more recent investigators have proposed additional precursors for lignin and in some cases have strong experimental evidence to support their claims. It seems highly desirable to develop a theory that is consistent with these findings and can account for additional aromatics such as safrole, methyl chavicol, etc.

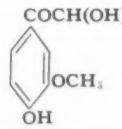
Mitchell and Hibbert[16] studying lignin of spruce proposed βoxy coniferyl alcohol or its keto form as the source of all the water soluble spruce lignin ethanolysis end products. They felt the following relationship existed:—



The keto form of βoxy coniferyl alcohol is a white crystalline solid, m.p. 81-82° with a faint vanillin like odor.

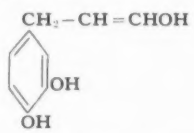
Harris and his co-workers[17] postulated a $CH_2CH(OH)$-or CH_2CO-group in maple lignin as a result of their work on that material.

The structure



has also been mentioned[1] as a breakdown product of lignin. Furthermore, a study[18] of the absorption spectra of lignin degradation products obtained by alcoholysis led to the conclusion that softwood lignins are derived from lignin precursors of the 1-(4 hydroxy-3-methoxy phenyl)-1-propane type and hardwood lignins from those of the 1-(3,5 dimethoxy-4-hydroxy phenyl)-1-propane type.

It does not require much adjustment of the xylose condensation theory, outlined above, to extend the work on wood containing aromatics. For example the unstable precursor which we proposed:—



can easily account for most of the precursors of lignin proposed by other experimenters as well as the coniferyl alcohol of Klason. The exact form that the precursor would take would vary somewhat depending on the stabilizing influences in the different plants. It can also be seen that with slight changes in conditions aromatics such as coumarin, heliotropine, eugenol, methyl chavicol, etc. could be formed from the same type of precursor. Thus cassia and cinnamon bark oils are predominantly cinnamic aldehyde whereas cinnamon leaf oils are mainly eugenol. It is entirely possible that they are derived from the same precursor or, as proposed in an earlier article[6], it is likely they are and the differences due to the varying enzymes in different parts of the plant. For those who care to carry this thinking further an article by Hall[19] would be of interest. The series of articles by Polak[20], although more specifically on fatty and amino acids, are excellent for a background in this subject.

continued page 62

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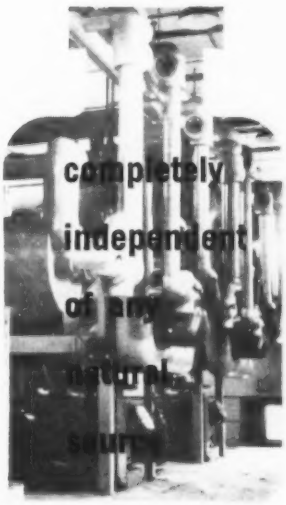

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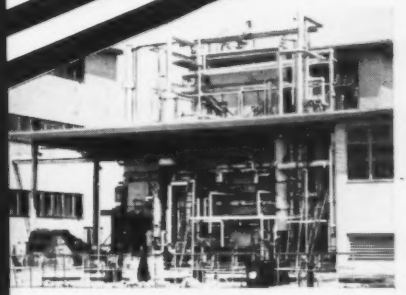

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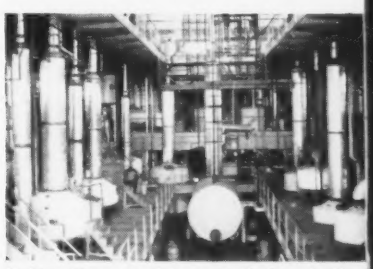

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The avenues for study in this field are endless. Noticing a similarity between vanilla and maple flavoring we were able to propose a common precursor for their origin. This led us to the balsams in general, then to the spice oils and finally all aromatics from a cellulostic origin. The browning angle led off in another direction aiding our understanding of maple, coffee, caramel and other such flavors which are partly derived from roasting or browning. The study of smoke flavors is also aided by considering likely precursors of the nature discussed.

The study of flavor origin is useless unless it is combined with a working knowledge of flavor composition, a thorough knowledge of aromatic materials, a familiarity with the literature and some research facilities. This combination has enormous potential for new flavor discoveries.

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GERARD B. LAMBERT was born rich but, through personal evtravagance and a business misadventure, was practically bankrupt at the age of thirty-six. He owed $700,000. In 1922 he asked for desk space at the Lambert Pharmacal Co. in St. Louis, an old family enterprise and the source of his inheritance. The company's product was Listerine, so named by Lambert's father, with the permission of Dr. Joseph Lister, the great English surgeon.

Net annual profit at the time of Gerard's entrance was $115,000. By 1928 the earnings were $7,000,000. In his first year at the plant, young Lambert learned that the medical term for bad breath was halitosis. That, and other innovations, did it. We lack space for the details, but in 1928 Lambert sold his interest in the company for something like $25,000,000, and thereupon retired from active business, except for a brief term as president of the Gillette Razor Co. (1931-35).

Yachting and house-building have been his main avocations, along with several spells in public service in Washington and in politics. Now, at seventy, he tells his story in an autobiography called All Out of Step.

In the middle of the book, Lambert mentions that he has loaned more than $1,000,000 to personal friends, none of which has been paid off except in two cases. These two were paid in full with interest. Plus the money he lost the other borrowers as friends.—*Samuel Himmell in Baldwin Brevities.*

To make friends with a man or with a country you should concentrate on points of similarity. To make marketing plans you should concentrate on points of difference.—*Arthur C. Nielsen.*

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2.

2. PRINCE MATCHABELLI

Black Watch Shave Lotion, Talc, Deodorant, and Men's Cologne are presented in a red travel kit with black simulated-leather trim. According to the manufacturer they are characterized by a leather-and-tobacco aroma undertoned with woody notes. The brass-capped, plastic bottles are identified by a metallic regimental seal. Kit and bottles are gift packaged in a shiny black box with red cover, decorated with the same metallic seal.

3.

3. MAX FACTOR

The newest addition to Max Factor Products for men is this Pre-Electric Shave Lotion, a green lotion, packaged in clear glass and labeled with a red and black pin-stripe. The four oz. bottle retails at 75¢. The counter display is green, black and white, holding 6 bottles.

4. TINKERBELL

Tinkerbell's Party Favors are featured in a three-color self-display unit containing eighteen favors, in the form of miniature doll houses containing miniatures of toilet water and talc. The arrangement of the favors in the display features the three defferent tints of toilet water—gold, orange, and blue. Retail price is 3 for $1.00 plus tax.

4.

5.

6.

7.

5. ROGER & GALLET

Roger & Gallet has introduced a new product, Sachet Mist, which retails for $2.00 in two fragrances, Blue Carnation and Fleurs D'Amour. The packaging of Sachet Mist has bold display value and easy legibility. It is wrapped in a gold and white, linen-textured label, lettered in Roger & Gallet's traditional French red.

6. RICHARD HUDNUT

To back DuBarry's new Creme Mascara, dealers have been offered this counter display unit designed in pink and gray, holding twelve units in assorted shades. The tube of mascara is packaged in a plastic holder and comes with two brushes. In black, brown and blue shades, $1.25 plus tax.

7. PEGGY SAGE

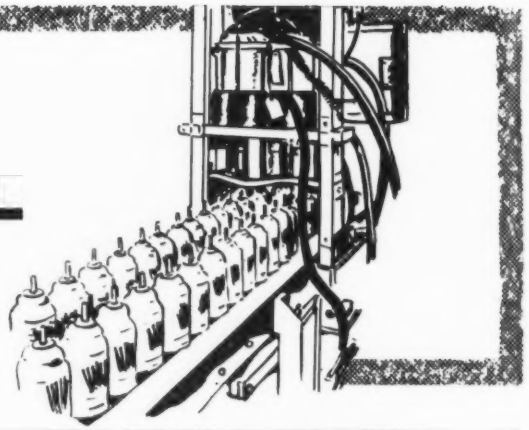
This twelve inch doll made of felt and wood is both attractive and practical for any dressing table. Hidden under the pink felt skirt is a supply of regular size Peggy Sage preparations. The bottles are securely held in a plastic framework. The set includes: Manicure Polish and harmonizing Stay Sheen Lipstick, Lubricant Polish Remover, Satinbase and Cuticle Remover, plus a nail file, emery boards, cotton, and orangewood sticks. Priced at $5.95 plus tax.

8. LENTHERIC

Lentheric is promoting its $60,000 Tweed Contest by offering a wide variety of counter and floor stand display units. The header cards of these units give contest data, with entry blanks available in each unit. The counter display contains 2 dozen plastic coated bottles of Tweed Hair Spray.

8.

Guide to AEROSOL PACKERS



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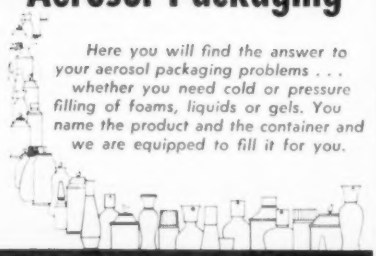

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AERO SCRIPTS

Jack Pickthall*

We have received from The Metal Box Company Limited, Information Sheet G.13-833 which gives a list of Foreign Manufacturers, their British associates and some of the better known products. This list names many materials met with in Aerosol formulae and indicates the British supplier or manufacturer.

From the same people we have received Information Sheet G.12-833 giving details of six British Patents dealing with pressurized formulations. Dispensers and valves are not included in these patents. The six patents are:

British Patent No. 717,460 (Zonite Products Corpn., Inc., N.Y.)
Application made in U.S.A.: 30/10/1951
Application made in U.K.: 20/10/1952
Complete specification published: 27/10/1954.
Title: Dispensing liquids by gaseous pressure.

Brief Summary of Claims: A dispensing device containing
1. a liquid medium to be dispensed,
2. a liquid propellent of greater specific gravity than and substantially immiscible with the liquid medium,
3. promotors of vapourization (porous pot, glass chips, etc.), and
4. propellent vapour, above the liquid medium.

The boiling point of the propellent does not exceed 20°C and the claims mention only chlorinated and/or fluorinated hydrocarbons having from one to two carbon atoms per molecule.

British Patent No.: 719,647 (Colgate-Palmolive-Peet Co., Inc., N.Y.)
Application made in U.S.A.: 8/8/1951
Application made in U.K.: 28/2/1952
Complete specification published: 8/12/1954.
Title: Shaving creams

Brief Summary of claims: Shaving creams comprising
1. a detergent (4-15% of total weight) consisting of water-soluble fatty acid soaps of sodium, potassium and at least one nitrogen-containing base, the fatty acids from which these soaps are derived having 12-20 carbon atoms in the molecule,
2. a low molecular weight halogenated hydrocarbon propellent (5-15% of total weight), and
3. aqueous solvent medium.

British Patent No: 732,692 (Zonite Products Corpn., Inc., N.Y.)
Application in U.K.: 12/12/1952
Complete specification published: 29/6/1955.
Title: Device for dispensing liquid by gaseous pressure

Brief summary of claims: A dispensing device containing
1. a liquid medium to be dispensed.
2. a liquid propellent of greater specific gravity than and substantially immiscible with the liquid medium, and
3. propellent vapour, above the liquid medium.

The boiling point of the propellent does not exceed 20°C and the claims mention only chlorinated and/or fluorinated hydrocarbons having from one to two carbon atoms per molecule.

British Patent No: 748,411 (J. G. Spitzer of Carter Products Inc.)
Application in U.K.: 10/4/1953
Complete specification published: 2/5/1956.
Title: Composition and means for producing and supplying Detergent Lather.

Brief summary of claims: Compositions for use in producing stable lathers consisting essentially of liquid mixtures of
1. an aqueous detergent solution containing 5-30% by weight of detergent, the latter comprising at least one of the following soaps: Sodium, potassium and water soluble amines, and
2. a halogenated hydrocarbon propellent having not more than two carbon atoms and containing at least one fluorine atom, the vapour pressure of the propellent ranging from 5-300 p.s.i.g. at 70°F. The propor-

*Chief Chemist, Polak & Schwarz, England, Ltd.

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tion of propellent to be from 0.2 to 0.0125 moles per 100 g. of the composition.

British Patent No: 762,405 (Zonite Products Corpn., Inc., N.Y.)
Application made in U.S.A.: 10/6/1953
Application made in U.K.: 27/5/1954
Complete specification published: 28/11/1956.
Title: Liquid composition capable of being Atomized at Normal Room Temperature

Brief summary of claims: A liquid mixture having a pressure lower than 25 p.s.i.g. at 70°F, comprising
1. 10-35% by volume of propellent (Freon type and/or butane),
2. an alcoholic vehicle comprising one or more saturated aliphatic monohydric alcohols, containing not more than three carbon atoms, and
3. an alcohol soluble ingredient, e.g. a perfume.

The minimum concentration of various alcohols is also specified, e.g. Isopropanol at least 75% by volume; ethanol at least 85% by volume: methanol at least 90% by volume.

British Patent No: 764,862 (Midland Silicones Ltd., London, W.1.)
Application made in U.S.A.: 16/2/1953
Application made in U.K.: 25/1/1954
Complete specification published: 2/1/1957.
Title: An article for Dispensing Organosilicon Compounds

Brief summary of claims: An article for dispensing a finely divided spray of an organosilicon material employing *chlorofluorocarbon* materials as propellents.

The organosilicon material could be a resinous or liquid siloxane polymer, a disilane, a silmethylene, etc.

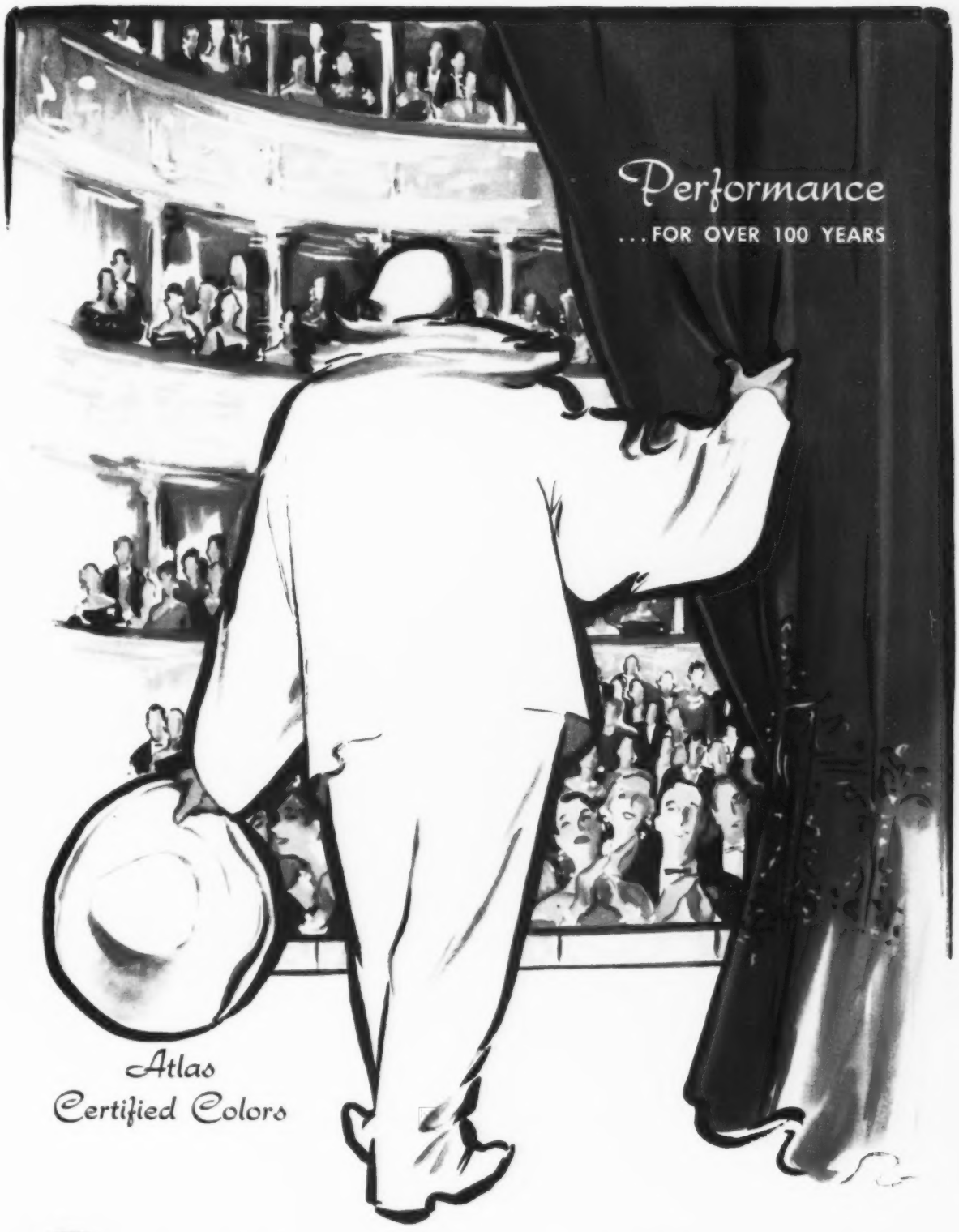
Whilst on the subject of Patents, I have noticed with interest the contribution which the sales of pressurized shaving creams have made to the income of the owners of the basic patent.

Not unnaturally I was interested to see Dr. Winston H. Reed's first Aerosol News in this journal. It was with some disappointment that I note he has been impressed with Mrs. Wiener's "rather solid foundation of thermodynamics" in her case against my article on the dangers of uncoated glass aerosols. It always surprises me how people continue to dismiss the one important point which is that many of the formulae quoted or inferred in the literature *do* result in dangerous explosions in uncoated bottles. However, I am writing some more on this particular subject.

The Third Year Course in Cosmetics held at Acton College, London, culminates in an examination which entitles successful candidates to a diploma and Associate Membership of the British Society of Cosmetic Chemists. This Third Year course is made up of series of lectures on specialized subjects each given by an expert in that particular field. One of the specialized subjects last year was Aerosols and many excellent answers were received to the question: "Describe the two-phase Aerosol system using a hair lacquer based on shellac and packed in a metal container as your example. Include a description of the conditions existing in the container before pressing the button and while the button is depressed." More time is being allocated to the subject of Aerosols in the forthcoming session.

We in the U.K. still read with some awe and a lot of envy about the various American activities in the Aerosol field. A special Aerosol Symposium for Pharmaceutical Manufacturers is a really progressive step. It was therefore with great pleasure that I found news of the various papers given in this Symposium in the "Aerosol Age."

Robert A. Foresman has given his views on how to enter the Aerosol Field, with special reference of course to pharmaceuticals. In his introduction he describes two complete typical aerosols. In view of certain criticisms which have been aimed at formulae I have quoted when considering the dangers of uncoated glass aerosols, I would just like to mention a short passage from Mr. Foresman's article. He says, "A typical glass aerosol could be described as all glass or plastic covered with a capacity of four ounces or less. The internal pressure is generally below 40 psi absolute at 70°F." He says that the contents of either of these containers could consist of Pharmaceutical Concentrate 50%, Propellant (Liquefied Gas 50%. I think readers will agree that this statement justifies the formula that I used in my photographic experiments. If you were to take the worst aspect of Mr. Foresman's suggested formula, you could have an uncoated glass aerosol, capacity 4-ozs, a pressure in the region of 25 psig and containing 50% propellant. There is no doubt whatever, that such a product packed in an uncoated bottle, would constitute an extremely dangerous article in the hands of the public. Now I know perfectly well that manufacturers would not go to these extreme limits but anyone entering the Aerosol field or trying to learn something about the Aerosols, might well be tempted to think he is dealing with a perfectly safe article. As Mr. Foresman says later, "Consideration of the methods of adding the pressurizing factor and the ramifications of its addition are, in reality, the reason for this symposium." I liked Mr. Foresman's emphasis on the fact that in normal pharmaceutical developments, the packaging process and the package components are not a serious factor in the development of the product, but that when dealing with the Aerosol variety, very serious thought has to be given to this side of the problem. As he points out, reactions between the ingredients and all components of the aerosol pack require detailed and long-time investigation. Mr. Foresman also underlines the wrong impressions which may be obtained from the use of elevated temperature storage tests and says that he relies more on the 100°



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test as opposed to the normal 130° test, even although he continues to run both. He considers that the results for chemical reaction occurring at 100° in one month are equivalent to four to nine months at 70°. He rightly warns that this interpretation must never be rigidly applied in complex systems such as aerosols. I particularly agree with his suggestion that the halogenated hydro carbons may form phosgene when in contact with flame or heated metals. This article contains a realistic survey of the difficulties to be met with on entering the Aerosol field. It discusses the possibilities of supplier service, contract filler facilities, the use of consultants and the establishment of ones own laboratory.

Dr. Martin Barr discusses some of the possible pharmaceutical applications in aerosol form. As he points out, aerosol therapy in the classical sense is not new in therapeutics. He claims that the recent advance in this direction lies in the use of aerosol dosage dispensed from a container by means of a propellant. The chief claims of the recent aerosol application are ease and speed of application and the possibility of administering a controlled dose. A further advantage lies in the fact that the aerosol can be designed to dry very rapidly when administered topically and that such an application produces a minimum of irritation to the treated area. He further suggests that other advantages are, absense of air, lack of contamination and lack of evaporation during periods of non-use. Although the sales of medicinal and pharmaceutical aerosols were rather less than a million and a half in 1956, Dr. Barr predicts they will increase many fold during the next few years. Although most pharmaceutical aerosols to date are for tropical use, Dr. Barr philosophizes that most externally used products such as ointments, creams, etc., may some day be dispensed as aerosols. This would in fact, bring us back to some of the problems now existing in the Cosmetic Industry as far as aerosols are concerned. This seems a very good chance for the pharmacist and the cosmetic chemist to get together. Well discussed in this article are dermatological preparations which have already appeared and suggestions are given for other products which could be investigated. The possibility of ears, nose, throat and dental preparations are discussed. Last but not least, Dr. Barr discusses inhalation therapy.

W. Earl Graham speaks at some length on Aerosol containers and commences with the development of these products starting from the old 'insect bomb' and finishing with the plastic aerosol container. He gives interesting details of I.C.C. regulations and runs through steel containers, plastic coated bottles, uncoated glass bottles, aluminum containers and plastic containers.

The section on valves is very well handled by Walter C. Beard, Jr. who commences by saying that the formulation and the valve are the two factors which determine the performance of a pressurized package. He explains how the valves work, classifies the different types of valves and indicates the special function of the valve in relation to the formulation and mechanical requirements of the package. His explanation of a simple basic aerosol valve gives the reader a very clear picture of this important item. He discusses fully, foam valves, mechanical break-up, actuators, powder valves and metering valves.

Thomas D. Johnson, Jr. speaks very pointedly on the aerosol market and in discussing the billion or so cans which have been made, says that a mere five, namely, space insecticides, room deodorants, hair sprays, shave creams and paints account for about 75% of the total dollar value of these products. He says that of the remaining ninety-five or so types, some were undoubtedly ill-conceived but that either the potential market is small, or the job of selling them has been poorly done. Having discussed some of the more important aerosol successes, he admits that he is somewhat ashamed of the production record on the pharmaceutical side.

David S. Tillotson in his survey of Propellant Systems uses three main classifications—1. Space and surface coating aerosol. 2. The foam aerosol and, 3. The three-phase aerosol. He says that pharmaceutical products can be formulated under all three headings and further suggests that it may be necessary to devise additional types for certain pharmaceutical applications. He discusses the naming of the various propellants, their resistance to attack by water and their effect on containers. In discussing the physical properties of the various propellants, he emphasizes the effect of the halogen portion of the molecule. When talking of the physiological properties of the halogenated hydrocarbons, he indicates the beneficial effect on fluorine.

These six feature articles (Aerosol Age, September, 1957) are a welcome addition to the aerosol field and should certainly be studied by all manufacturers of pharmaceutical preparations. Before leaving these articles, I was interested to note that all six writers used the spelling 'propellant'.

Trade Literature

A. Boake, Roberts & Co. has published a catalogue of Aromatic and Fine Chemicals. This is a 34 page catalogue, divided into three sections: Aromatic Chemicals, Pure Perfumery Chemicals, and Miscellaneous Fine Chemicals.

Industrial Process Engineers has just published an eight page brochure featuring the procedure for selecting its Side-Entering Agitators. Also included are the mechanical design details of their latest model side-entering agitators, a table of standard sizes and dimensions, and an outline of the supplementary information than is supplied with each installation.

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Much of the information in the book has its source in the research activities of the well-known author, which date back for many years and embrace the fields of chemistry, dermatology and microbiology.

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New PRODUCTS & IDEAS

AUTROMETER—1

Recent design additions to the Norelco Autrometer, multi-indexing X-ray Spectrograph, have extended the range of the instrument to include 81 elements in the atomic scale, from magnesium (#12) to uranium (#92), according to an announcement by the Instruments Division of Phillips Electronics, Inc. The new Autrometer reportedly provides an accurate and rapid analysis of products in any critical stage of manufacture and indicates the need for addition or removal of elements to guarantee uniformity of mixes, or degree of purity of components. Relative speed of analysis is upwards of 50 times faster than chemical methods. The main chassis assembly is a desk-type structure that houses the X-ray tube and generator tank, goniometer mechanism, crystal and counter, and specimen changer. Shielding and safety switches protect the operator from radiation at all times.

BOROSILICATE GLASS

Perfection of a hard glass, known as KG-33 borosilicate glass which will serve as a new source of supply for expanding laboratory research requirements was announced recently by Kimble Glass Co., a subsidiary of Owens-Illinois. The new glass, which company officials say matches or excels the performance of any similar hard glass now being manufactured, will be used by Kimble in its Klimax line of laboratory glassware items.

MAGNETIC STIRRER

Magnetic stirring is the basis of the newest stirrer developed by Fisher Scientific. The new Fisher Jumbo Magnetic Stirrer handles liquids of a wide viscosity range in quantities up to three gallons. Magnetic lines of force do the work, eliminating contaminant-collecting shaft and impellers of mechanical stirrers. A Teflon-sealed Alnico magnetic bar, placed inside the container, revolves at the same speed as the stirrer motor.

LIQUID PACKETER

A high-speed Liquid Packeter, specifically designed to handle all viscous, semi-viscous and free-flowing liquids, is now in production by the Brown Filling Machine Co., Inc. The BFM Liquid Packeter measures the product and forms, fills and heat-seals the packet in one continuous operation. Packet sizes up to 4½ x 4¾ inches can be produced. An outstanding feature of the BFM Packeter is electric eye registration of both sides of the package to assure perfectly centered labels.

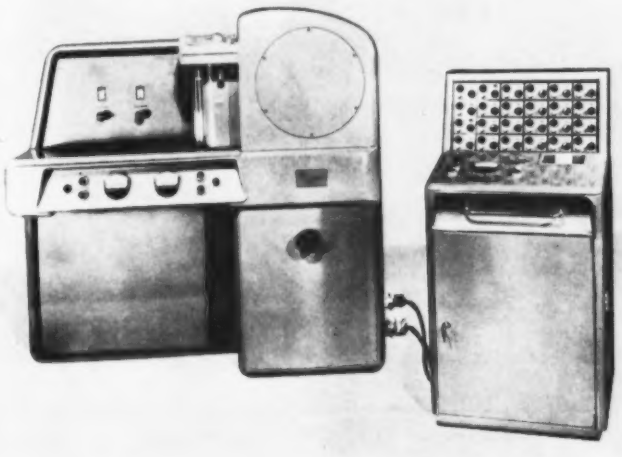
COLORING

Anattene (R), the first vegetable coloring in the yellow-to-orange range offered commercially in both water-soluble and oil-soluble types in microcrystal, powder, and liquid form, has recently been introduced by S. B. Penick & Co.

AEROSOL FILLER—2

A small production line 'cold' filler capable of filling approximately 1,000-6 oz. cans per day with one operator has been introduced by Builders Sheet Metal Works Inc. Two different propellants can be filled and twenty cans and the product can be precooled in the cold box. Complete assembly includes an air crimper, air compressor, and laboratory scale all mounted on a formica table top 30" x 48". The refrigeration unit is of the water cooled open type design, taking advantage of the efficiency of the water cooled design and the servicability of the open unit. Water flow is fully automatic and stops when the unit is off.

1.



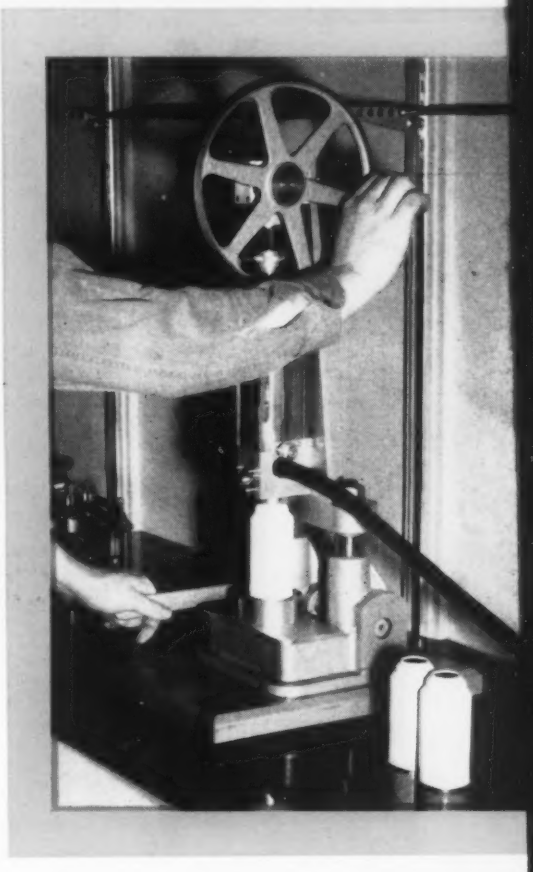
2.

Skillful hands at the potter's wheel

van Ameringen-Haebler, Inc.

Not only the creative skills of the master perfumer, but also the technical skills of the chemist and researcher in many branches of science, play an important part in producing the right fragrance for your product. In the selection of your next perfume, seek the able guidance of the van Ameringen-Haebler team.

Skillful Hands



Skilled hands of a technician working with the Liquid Gas Manipulator in the van Ameringen-Haebler aerosol laboratory. Here is found all manner of equipment for the development, formulation and testing of every type of pressure-packed product. One of the customer services offered by van Ameringen-Haebler, Inc.

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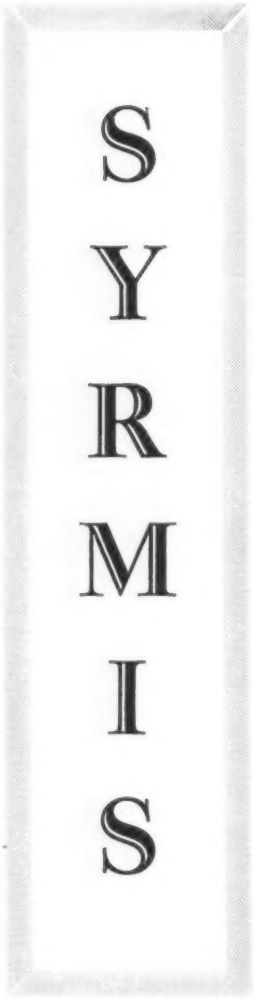

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Extensive consumer tests place Syrmis in the top brackets for universal appeal on the American market.

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Syrmis "C" for creams and lotions . . . that this memorable fragrance may enhance your toilet preparations also.

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News and Events

Dr. John H. Draize To Receive SCC Award

Dr. John H. Draize, Chief—Skin Toxicity Branch, Division of Pharmacology, U.S. Food and Drug Administration, has been selected by the Society of Cosmetic Chemists to receive its 1957 Medal Award for outstanding contributions to cosmetic science.

Recognized as the outstanding contributor in establishing adequate tests and methods to assure the safety in use of new and varied cosmetic products, Dr. Draize has over the years been accorded scientific recognition by having such methods and tests named for him.

Dr. Draize, the 9th recipient of the Society's Medal, was born in Brussels,

Dr. John H. Draize

Wisconsin and educated at the University of Wisconsin, being awarded the Ph.D degree in Pharmacology in 1931.

He entered Federal Service in the Medical Research Division, investigating war gases in 1935. This appointment heightened his interest in skin pharmacology and toxicology and he was appointed Pharmacologist in the Food and Drug Administration in 1947, assigned to cosmetic and topical drug problems. He was appointed Chief of the newly created Skin Toxicity Unit in 1947.

He is a member of the Society of Pharmacology and Experimental Therapeutics, Society of Experimental Biology and Medicine, the American Assn. for Advancement of Science, and others. His professional fraternity memberships include, Sigma Xi and Phi Sigma.

The Society's Medal will be awarded to Dr. Draize at its Annual Meeting and Medal Award Dinner, December 10th, in New York City by Sabbat J. Strianse.

Safrol a Potential Hazard to Health F. D. A. Finds

Safrol, the major constituent of oil of sassafrass and an important component of root beer, incorporated with other flavoring materials in flavors exerts a toxic effect on rats the Food & Drug Administration reports after 27 weeks of research. It has been found that safrol presents a hazard at concentrations not greatly exceeding actual use levels. The Flavoring Extract Manufacturers Assn. is undertaking tests to distinguish the safe from the hazardous.

JACK REINER TESTIMONIAL

Speakers table at recent testimonial dinner to Jack Reiner: H. Rosenthal, S. Urban, D. Dunlop, Edward Plaut, Jack J. Reiner, S. L. Mayham and Joseph Gilbert.

All Claims For Carter Aerosol Patent Upheld by Supreme Court

The Spitzer patent for pressure packaging of shaving creams owned by Carter Products, Inc. has been upheld for a second time on all claims. Colgate-Palmolive Co.'s appeal to the court to overrule the decision of the U.S. Court of Appeals has been denied. Colgate claimed that the decision of the lower court was a threat to the $30,000,000 aerosol shave industry and that Carter created an oppressive licensing program for the patent.

Givaudan Corp. to move to New Offices in April, 1958

The Givaudan Corp. and its associated companies: Givaudan-Delawanna, Givaudan Flavors and Sindar Corp. will move to enlarged executive and sales offices late in April, 1958. The company has leased the seventh and a part of the eighth floor of the Warner Brothers building at 321 W. 44th St., New York 36, N. Y. for a long term. The increase in space will permit larger perfume, cosmetic and flavor laboratories.

NOTABLES VISIT GLASSHOUSE REPLICA

Examining a hand-blown glass container made by 17th century methods at a replica of the glasshouse established at Jamestown, Virginia, almost 350 years ago by America's first colonists are (left to right) Edmund F. Ball, president of the Glass Container Manufacturers Institute, Congressman Edward J. Robeson of Virginia; Joseph C. Feagley of the Armstrong Cork Company; and J. C. Harrington, National Parks Service historian.

BRECK HOST TO BOB HOPE

Left to Right: S. Dwight Parker, President of Springfield Fire and Marine Insurance Company; Leland Kalmbach, President of Massachusetts Mutual Life Insurance Company; Bob Hope and Edward J. Breck, President of John H. Breck, Inc., at the start of the recent golf match in Springfield, Mass.

Dr. Ernest Guenther Continues Adventurous Tour

According to the latest reports from Dr. Ernest Guenther of his tour of the essential oil producing regions of Africa, that continent is still seething with the adventure, beauty and intrigue for which it is renowned. The latest reports cover Dr. Guenther's trip to Reunion Island, with exposition on the geranium cultivation and distillation there along with Oil of Vetiver, Ylang Ylang and Vanilla. Dr. Guenther then flew into the clove area of Madagascar to study the clove and clove leaf oil industry there.

Pharmaceutical Council Holds Annual Drug Show in New York

The Annual Drug Show & Convention sponsored by the Pharmaceutical Council of Greater New York was held in New York City, Sept. 15th thru 17th.

Ansbacher-Siegle Corp. Sold to Sun Chemical Corp.

Ansbacher-Siegle Corp. one of the oldest and largest privately owned pigments manufacturing companies has been sold to the Sun Chemical Corp. It has been a leading supplier of certified colors. Its earnings for the fiscal year ended August 31 were over $4,000,000.

Aceto Chemical Co. Offers New Isopropy Myristate

Aceto Chemical Co. Inc., announces the availability of Iso Mist Extra, a new double-distilled Isopropyl Myristate. According to the company, Iso Mist Extra surpasses the specifications set up by the T. G. A. for materials used in cosmetic formulations.

C. S. M. A. Prepares Model Legislative Bill

A model bill requiring that retail packages of hazardous substances be labeled sufficiently to warn the average consumer of potentially harmful ingredients has been prepared by the Chemical Specialties Manufacturers Assn. One of its principle objectives is to promote uniformity among states which may be considering such legislation.

Martin Lowenthal, Inc. and Colyer Pectin Co. Merge

Martin Lowenthal, Inc. and the Colyer Pectin Co. have merged as The Colyer Co., Inc., with new offices at 350 Lexington Ave., New York, N.Y. They are handling all types of pectin, high and low methoxyl, citrus, and apple; enocianina, fruits, juices, concentrates, dried fruits and specialties.

Assn. of Consulting Chemists Announces New Officers

The Assn. of Consulting Chemists and Chemical Engineers has announced the election of the following officers:

Officers, 1 yr. terms

President: Lincoln T. Work, cons, chem. eng., New York City

Vice-Pres.: Abraham Taub, consulting chemist, Coll. of Pharmacy, New York City

Secretary: Chas. Davidoff, cons. metall. eng., New York City

Treasurer: Sam Tour, Sam Tour & Co., cons. chem. & metall. eng., New York City

Councilors, 3 yrs. terms

A. G. Ashcroft, Arthur D. Little Inc., New York City

Harry A. Kuhn, consulting chemist, Washington, D.C.

Irving Levenstein, Leberco Labs, Roselle Park, N.J.

David R. Schwarz, V.P., Schwarz Labs. Inc., Mount Vernon, N.Y.

Eugene W. K. Schwarz textile consultant, New York City

Hold-Over Councilors

Carl Bussow, A. W. Dow Inc., past president

Benjamin R. Harris, Epstein, Reynolds & Harris, Chicago, Ill.

Jos. W. E. Harrisson, LaWall & Harrisson, Philadelphia, Pa.

David N. Kendall, cons. chemist, Plainfield, N.J.

Percy E. Landolt, cons. chem. eng., New York City

Nicholar M. Molnar, Molnar Labs., New York City

James P. O'Donnell, cons. eng., New York City

Donald Price, consulting chemist, New York City

Maurice S. Sage, Sage Labs., Inc., New York City

Cecil M. Shilstone, Shilstone Testing Lab., New Orleans, La.

Emerson Benable, cons. chem. eng., Pittsburgh, Pa.

Man in the Doorway Film Shown at Perfumers' Society Meeting

"The Man in the Doorway," a documentary scientific color film made by American Cyanamid Co. on the occasion of its 50th corporate anniversary was shown to a large audience at the October 16 meeting of the American Society of Perfumers in the Advertising Club, New York.

The film demonstrated the way chemistry has bridged the lengthening gaps between nature's yield and man's need, by searching out man made products even better than those provided by nature.

President Pierre Bouillette presided and Vice President A. J. Schwindeman spoke before the film was presented. Both men added a touch of good humor in their speeches.

Adolph Schwarz Marks 40th Year With Polak & Schwarz Co.

Adolph Schwarz

Adolph Schwarz, managing director of Polak & Schwarz, recently celebrated his 40th anniversary with the Co. His cousin, Samuel Schwarz, son of the founder, headed the company at that time. Adolph Schwarz became deputy manager in 1921 and was appointed associate managing director in 1929. Besides being a leader in business, Mr. Schwarz is also a lover of art. Quite a few experts are familiar with his private collection of Dutch paintings, including works of Ruysdael and Van Gogh.

Frank Pull, Van Dyk & Co. Married October 20

Frank Pull, Van Dyk & Co. who has been associated with the perfume, essential oil and aromatic chemical industry for over 20 years, was married October 20 in the Wesley Methodist Church, Belleville, N. J. to Miss Carmela Del Vescovo. The honeymoon was spent in Florida.

Presidents Night Nov. 20 for New York S. C. C. Chapter

Sabbat Strianse, president of the Society of Cosmetic Chemists, will be honored by the New York Chapter of the Society on the evening of November 20 at the Brass Rail Restaurant, New York.

Mr. Strianse will be the speaker of the evening and will discuss the "Growth and Future of the Cosmetic Chemist." At the same meeting the new officers for 1958 will be installed. Chairman Warren B. Dennis Jr. will preside at the meeting.

Mr. Strianse has had over 15 years of experience in the cosmetic industry and has been associated with Richard Hudnut, George W. Luft Co., Vick Chemical Co. and the Drug & Chemical division of Shulton Inc. his present position. He is a member of the American Chemical Society, the American Pharmaceutical Assn., and the American Assn. for the Advancement of Science.

NWDA Holds 83rd Annual Meeting

The 83rd Annual Meeting of the NWDA was held recently in Florida, with Northram Warren, Jr. as Entertainment Chairman.

Paul de Lathuy Honored by France

We have just learned that Mr. Paul de Lathuy has been made a Chevalier in the French National Order of the Legion of Honor.

Mr. de Lathuy is the manager of the Color Division of Givaudan & Cie., Geneva, Switzerland which he created to supply the soap and cosmetic trade with quality colors. He is also a Councillor on Foreign Commerce to the French Government and a member of the French Expositions Committee. To Mr. de Lathuy and our friends at Givaudan we extend our sincere congratulations.

Christian Dior Perfume Business to Be Continued

The sudden death of Christian Dior at the age of 52 in Montecatini, Italy has prompted a statement by Ann Wright, executive vice president and general manager of Christian Dior Perfumes Corp. that the business will be continued without change in the perfume policy of the company in the United States or of Parfums Christian Dior, Paris, under the management of Serge Heftler-Louiche, president. The French company distributes perfumes in 115 countries.

NBBMA Directors to Meet in New York December 3

The board of directors of the National Beauty and Barber Manufacturers Assn. will hold a dinner meeting in the Advertising Club, New York on the evening of December 3.

Dunbar Div. of Chemway Corp to Have New Laboratories

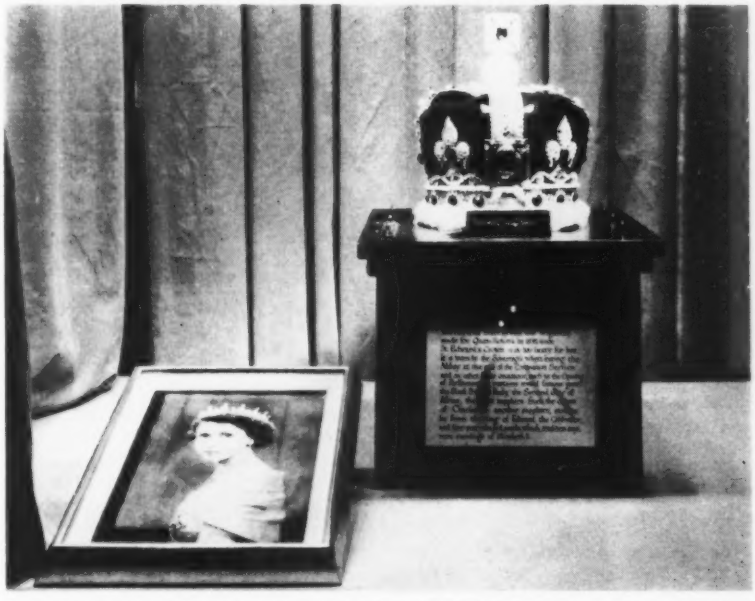
Dr. J. B. Nagler

New laboratories are under construction at the Mountain View, N. J. plant of the Dunbar Division of the Chemway Corp. Dr. J. B. Nagler is director of product development at the laboratories.

Chicago S. C. C. Holds November Meeting

The November meeting of the Chicago Chapter of the Society of Cosmetic Chemists was held on November 12th at Henrici's Restaurant at the Merchandise Mart. This meeting was the annual Presidents' Night meeting, during which officers for the coming year were installed. The guest speaker of the evening was Sabbot J. Strianse, the National Society's president this year.

YARDLEY DISPLAY FEATURES BRITISH CROWNS



Passers-by of the Yardley of London salon in New York had a rare opportunity to see replicas of the Imperial State Crown and Imperial Crown of India, featured in window displays for the recent visit of Queen Elizabeth II. The Imperial State Crown and Imperial Crown of India were regally mounted against red velvet backdrops in the Yardley windows. The originals are in the Tower of London, and, by Act of Parliament, never leave England.

L. Tracy Sheffield Re-elected to Connecticut Chamber of Commerce

L. Tracy Sheffield, president of The Sheffield Tube Corporation of New London, Connecticut, has been re-elected district vice president of the Connecticut Chamber of Commerce. Mr. Sheffield will direct all Chamber activities in New London county. His re-election to this important post was announced by Robert P. Stacy, president of the 58 year old state organization.

Ferdinand Weber Marks 65th Year With George Lueders & Co.

Ferdinand Weber, vice president and treasurer of George Lueders & Co. celebrated on October 3 his sixty-fifth year with the company. He marked the occasion by tendering a dinner to the Veterans Organization comprised of employes who have been with George Lueders & Co. twenty-five years or longer. The officers presented Mr. Weber with a cane banded in silver bearing a suitable inscription. Mr. Weber is at his desk daily and keeps in close touch with the interets of the company.

S. C. C. European Tourists Have Reunion in Chicago

From left to right: Mrs. M. G. deNavarre, Dr. Sophie Pleckner, Mrs. J. Kakehashi and Mrs. R. Kramer.

On the occasion of the S. C. C. Seminar in Chicago on September 19-20, the Jerry Kakehashis had an impromptu cocktail party for those present who were with them on the European Tour. The picture shows the hostess along with three helpers preparing hors d'ouvres for the guests at the Kakehashi home.

TGA Scientific Section Program Announced

The 26th meeting of the Scientific Section of The Toilet Goods Assn. will be held on Monday, December 9, in the Sert Room of the Waldorf-Astoria Hotel, New York City, with luncheon in the Empire Room. The meeting is, as customary, closed to non-member companies. The program follows:

Polyoxyethylene Gums in Toilet Goods by Lloyd Osipow and Lester D. Berger, Jr., Foster D. Snell, Inc. and Union Carbide Chemicals Co., respectively.

Cutaneous Antiseptic Activity of 3, 4, 4'—Trichlorocarbonilide by Daniel P. Roman and E. Harvey Barnett, Monsanto Chemical Co.

The Effect of Fluorides on the Solubility of Powdered Tooth Enamel by S. D. Gershon, O. W. Neiditch and R. H. C. Lee, Research and Development Division, Lever Brothers Co.

Use of the Patch Test in Eliminating Dermal Hazard by Harry L. Rubenkoenig and Robert A. Quisno, Hilltop Research Institute.

Silicone Defoamers—Physiological Aspects and Defoaming Efficiency by R. C. Gergle, W. T. Gregory and C. W. Todd, Dow Corning Corp.

Further Laboratory Studies of Potential Anti-Seborrhoeic Agents by Irwin I. Lubowe, M. D., Assistant Clinical Professor, Department of Dermatology, New York Medical College, Metropolitan Hospital Center.

The Effect of Creams and Lotions on the Moisture Retention on the Skin by Donald H. Powers and Charles Fox, Warner-Lambert Pharmaceutical Co.

Spray-Dried Onion and Garlic Developed by Dodge & Olcott

Dodge & Olcott, Inc., has developed two new products, Dolcoseal Onion and Garlic, spray-dried from pure, natural oil. Reportedly equal in strength to dehydrated onion and garlic, their stability and storage life exceed the former. Among the advantages, flavor and aroma that are instantly available, requiring no time for leaching out as in the case of the dehydrated products.

Dubonnet Products Acquired By Bel-Art Products

Bel-Art Products has announced the acquisition of Dubonnet Products, which will operate as the Dubonnet Acetate Division. The entire Dubonnet staff is now with Bel-Art Products.

Contest For Pharmacy Students Announced by J. B. Roerig and Co.

J. B. Roerig and Co. is encouraging pharmacy students to formalize practical proposals for solving economic problems of the profession. The company has invited students in accredited U. S. colleges of pharmacy to enter a pharmaceutical essay contest it is sponsoring, with a $250 award for the best essay submitted.

Kenneth G. Voorhees Honored At Testimonial Luncheon

Kenneth G. Voorhees, president of Ungerer & Co., Inc., New York City, was presented with a gold watch October 2nd, in recognition of twenty-five years of service with the company. A testimonial luncheon sponsored by his executive associates, followed the presentation.

Mr. Voorhees joined the company in 1932; became president in 1949 and completed the twenty-five year period of service on October 2, 1957. During his association with Ungerer, the growth of the company has been continuous; including a new manufacturing plant, the complete modernization of the New York office and branch warehouse, and the establishment of new branch office facilities in Los Angeles and Toronto.

Some fifty members of the organization attended the celebration, including Ivon Budd and George Branigan, both of whom spoke briefly. Mr. Voorhees then envisioned the continued expansion of company activities, speaking encouragingly of plans for the future.

Bonwit Teller Window Features Diorissimo

Bonwit Teller in New York recently presented Christian Dior's new Diorissimo perfume in its eight Fifth Avenue windows. A Versailles mood of grandeur befitting the style of the Grand Luxe Baccarat flacon of Diorissimo prevailed throughout the window series.

HELENA RUBINSTEIN GIFT TO ITALIAN HOSPITAL

While in Italy recently Madame Rubinstein presented a check for two million lire to Signor Gronchi, the wife of the Italian president. This gift will be used to build a new children's dormitory in Rome's leading hospital for paraplegic children. Madame Rubinstein is photographed with Signor Gronchi in her office at the presidential palace.

Audrey Langdon Opens Public Relations Agency

Audrey Langdon, formerly in charge of the public relations activities of the Research and Development Dept. of the Colgate-Palmolive Co. has opened an agency for public relations programs and public opinion studies at 6 E. 39th St., New York, N. Y.

Advertising Essential Show in New York Nov. 25-27

The annual Advertising Essentials Show conducted by the Advertising Trades Institute Inc. will be held in the Roosevelt Hotel, New York, November 25-27. The show is directed to the interests of advertising and sales promotion executives.

S.C.C. Announces Annual Meeting Program

The Society of Cosmetic Chemists will hold its Annual Meeting and Medal Award Dinner Tuesday, December 10th at the Hotel Commodore, New York City. The technical program follows:

Andrew J. Gard, Dow Chemical Co., "Some Aspects of Chelation in Cosmetic Products".

Howard T. Worne, Erlton, Haddonfield, N.J., "The Lipid Assay of the Skin".

Robert D. Griesemer, Department of Dermatology, Massachusetts General Hospital, "Studies on Enzymes in the Skin: Their Value as a Research Tool".

J. Steven Stock, J. Steven Stock Research Co., "The Role of Survey Research in New Product Development".

Afternoon Session

Linwood F. Tice and Martin Barr, Philadelphia College of Pharmacy and Science, "Factors to be considered in the Preservation of Cosmetic Emulsions".

Paul A. Sanders, Organic Chemicals Department, FREON Products Laboratory, E. I. du Pont de Nemours & Co., "Aerosol Emulsion Systems".

E. Allen Newcomb, Malmstrom Chemical Co., "Evaluating a Liquid Lanolin—a Case Study".

Conference on Organizing a New Product Program

A special conference on organizing a new product program wil be held November 21-22 in the Hotel Statler, New York, by the Marketing Division of the American Management Assn.

Experimental data and practical manufacturing experience of over 100 years' specialization in beeswax and beeswax compounds are at your service without cost or obligation. Write about your beeswax problems to

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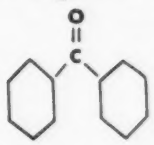

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COSMETIC CAREER WOMEN IN FOURTH YEAR

COSMETIC CAREER WOMEN launched its fourth year as an industry group with a luncheon-meeting on October 1st at the Waldorf-Astoria Hotel. Over 100 members and guests attended. Guest speaker was Harriett Moore of Social Research, Inc., Chicago, Ill., who gave an excellent talk on "Motivational View of Cosmetics." Seated on dais: Kay Colton of Morningstar-Nicol, Inc., Kay Fitzpatrick of TGA, Mrs. Moore, Bernice Peck, Health & Beauty Editor of Mademoiselle, Chairman of the day, Tess Tinker, retired, of Shulton, Inc., who addressed the meeting briefly, and Peg Burrow of Oxzyn Co.

New York S. C. C. Learns of Use of Microbiology in Cosmetics

Microbiology and its place in cosmetic chemistry was discussed in an interesting way by Mrs. Elizabeth B. Ramsey, chief microbiologist of Leberco Laboratories before a large and interested audience at the October 23 meeting of the

Elizabeth B. Ramsey

New York Chapter of the Society of Cosmetic Chemists.

Mrs. Ramsey reviewed the fundamentals of microbiology with emphasis on microorganisms and definitions encountered in working with cosmetic preparations.

The use of antiseptics, fungicides, preservatives and antibiotics has created a multitude of testing methods using various microorganisms. One purpose of the address was to familiarize the cosmetic chemist with the underlying laws and principles of the subject so that he may not only be in a position to realize the meaning and scope of some of the newer discoveries and methods but may be in a better position to decide for himself their proper application and limitation.

Various factors relating to the function and mode of action of chemical disinfectants were discussed. Special reference was made to several antibiotics that have been shown to be suitable for use in cosmetics.

Since tyrothricin, gramicidin, bactitracin and neomycin are virtually non-toxic when used topically or even orally and have records of low incidences of allergic sensitivities and drug resistance their use in cosmetics was emphasized.

Several lantern slides were shown summarizing various properties of neomycin sulfate and neomycin palmitate. The antibacterial spectrum of these two antibiotics indicated that neomycin palmitate has greater activity over a wide variety of microorganisms. Its use in soaps, shampoos, creams, lotions, etc. is promising.

Fred Theile Named Shulton Perfume Administrator

Fred Theile has been appointed perfume administrator for the perfume department of Shulton, Inc. according to an announcement by George L. Schultz, president. For the last six years Mr. Theile has been production manager of Shulton's Fine Chemicals Division. Mr. Theile was graduated from Rutgers University and later served with the Naval Research Laboratories in Washington and with a leading essential oil company.

Aerosol Techniques Adds Samuel Prussin to Sales Staff

Samuel Prussin has joined Aerosol Techniques Inc. as director of new products and sales development. Mr. Prussin was graduated from Rutgers University. He served with the Medical Corps of the U. S. Army and later was associated with Johnson & Johnson and the Rexall Drug Co. where for eight years he was associate director of research and product development.

Rhodia Announces Two Promotions

The promotion of Paul Brna to district-sales manager of Rhodia's Mid-West Division has been announced by Jacques

Paul Brna

Leroux, sales manager. Mr. Brna will be responsible for sales of Rhodia's products of the Aromatic, Flavor, and Alamask Division and the Pharmaceutical Division.

Frank Ball, who has had over 13 years of experience in the aromatic chemical and pharmaceutical field, has been ap-

Frank Ball

pointed sales representative for Rhodia's Mid-West Division. Mr. Ball will contact customers in the Metropolitan area of Chicago, Ill., and in the states of Wisconsin, Minnesota, Iowa, Nebraska, Kansas, Missouri, Michigan, and North and South Dakota.

Two Executives of Colgate-Palmolive Co. Die

Henry A. Colgate, a director and former vice president of Colgate-Palmolive Co. died in New York, October 16 at the age of 67 years. He was also president and chairman of the trustees of Seeing Eye, Inc. a charitable enterprise to help the blind. He also served as a director of the International Paper Co.

Hugh R. MacMillan Jr., vice president of manufacturing and a director of Colgate-Palmolive Co. died at his home in Springfield, N.J., October 6 at the age of 53 years, following a brief illness.

SPOTLIGHT News...

The Cow Jumped Over Sputnik is the subject of the address to be given November 19 by Robert W. Dowling, president of the New York Board of Trade, president of the City Investing Co. and chairman of the American National Theatre and Academy before the members of the Drug, Chemical and Allied Trades Section of the New York Board of Trade at the Fall luncheon meeting.

Toilet Soap for Queen Elizabeth II while Her Majesty was in New York City was delivered by Robert Buckalew, vice president of Roger & Gallet to the Royal Suite in the Waldorf Astoria hotel. The soap given to add to her comfort was a package of Roger & Gallet soap which is used in Buckingham Palace.

Data on more effective point-of-purchase advertising is to be presented at a seminar conducted by the Point-of-Purchase Advertising Institute at the Plaza hotel, New York, December 5. The theme of the seminar is "New Guideposts to More Productive Merchandising."

Free inoculations against Asiatic influenza have been offered to the 40,000 employes of the American Can Co.

Suds-n-Rinse is a new product for delicate fabrics offered by Miss Hazel Bishop, president of H. B. Laboratories Inc. and H. G. B. Products Corp. The new product comes in a gaily decorated polyethylene bottle with a flip up and flip down top. The bottle contains 8 oz. and retails for $2. Miss Bishop is not now connected with Hazel Bishop Inc.

For use on hands, elbows, knees and upper arms especially, Lilly Dache has launched a new Queen Bee hand and body lotion packaged in a shaker top bottle of 4 oz. which retails for $15.

The Quadrille ballroom of the St. Moritz hotel, New York was perfumed with Balenciaga Quadrille perfume when it was formally opened October 16 by Jacques Baeyens, consul general of France. The perfume was supplied by Henri Bendel, U. S. distributor for Balenciaga who supplied gift packages to all ladies present.

The first hand lotion to contain the medical ingredient polyunsaturates has been launched by Coty Inc. Originally discovered by dermatologists as a treatment for severe skin irritations, polysaturates, the company states, proved to have a healing action on the hands due to its properties of moisturizing the skin and rebuilding new tissues. The new product is named Polysil.

A dandruff control feature is included in a new hair preparation called Q. E. D. which is being market tested by Ar. Winarick, New Brunswick, N. J., a division of Lorr Laboratories.

The new striped dentifrice called "Stripe" introduced late in 1956 by the Lever Bros. Co. on the west coast was introduced into the midwest and eastern areas of the country October 14.

An adaptable refill system has been announced by Anatole Robbins, Hollywood, Calif. for its two lines of lipsticks. Eight basic shades for the refills are available. The refills are packed in black cases in the parellel colors and blends to facilitate easy customer selection and retail at $1.

Royal jelly to be taken internally is included in the new product "Beauty for Life" capsules offered by Helena Rubinstein Inc. The capsules contain also a variety of vitamins and protogelatin and are claimed to supply all vitamins for daily nutritional requirements plus beauty benefits for restoring skin, hair and nails to normalcy. The capsules are sold in a bottle containing 75 capsules which retails for $10.

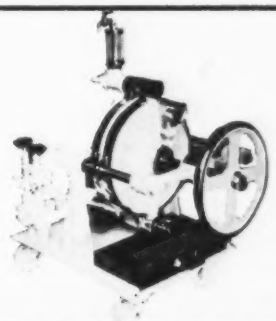
About 45% of the larger cities in the U.S. fluoridate their water supplies primarily to protect children's teeth from decay according to the United States Public Health Service. Among the cities are Chicago, Philadelphia, Baltimore, Washington, Pittsburgh, Cleveland, Milwaukee, Buffalo, San Francisco and St. Louis. The survey indicates that about 25% of the people who use public water supplies now drink fluoridated water.

Only mothers can win in a promotional contest begun by the Procter & Gamble Co. for Crest toothpaste. The mothers only angle is used as a tie-in with Crest's current "Look Mom no cavities" campaign. First prize is $20,000 in cash. Magazines, television and in-store material are being used.

For dry or thin skin Dorothy Gray Ltd. has launched deluxe Satura Sheen, a tinted powder foundation. It comes in six shades.

A hair preparation with a built-in permanent wave is the way Bymart-Tintair Inc. describes its new Beauty Set Curl Creme. Test marketing began in 1955, and the last week in October of this year, after making some refinements, a promotion campaign to reach 17 markets was launched. Over 400 tv spots per week and newspaper advertising is being used to introduce the new product.

FILTERS AND BOTTLE FILLERS
for the Perfumer



MODEL EBW PORTABLE FILTER — This filter is recommended for small capacity requirements. Accomodates from 4 to 8 12¼" dia. filter disks. Easy to set-up and operate.

PORTABLE VACUUM BOTTLE FILLER

Will rapidly fill small or batch lots of material at lowest cost. Fills bottles to uniform height without loss of material. Interchangeable spouts for filling shaker-type bottles to gallons.

ASBESTOS FILTER SHEETS
Various Sizes

Ertel Asbestos Filter Sheets for ultra polished brilliance are used for many fine perfumes and cosmetics. Available in 10 grades to fit all standard filters. Write regarding samples for superior result tests in your filter.

Write for Illustrated Catalog

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10 FAIR ST., KINGSTON, N. Y.
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DALLAS TIMES HERALD "PARIS EDITION"

Flanked by mannequins in one of his famed specialty shop's "French Fortnight" displays, Stanley Marcus, president of Neiman-Marcus in Dallas, pores over the "Paris Edition" of The Dallas Times Herald. The newspaper faithfully recreated Parisian journalism in Texas.

Paris Edition Features "Perfume for Grooming"

Among the stories written especially for The Times Herald of Dallas was one in which Edouard Cournand, president of Lanvin Perfumes, attributes the great gains of the industry to the fact that American women have learned that perfume is a very essential part of grooming.

Edouard Cournand reports that his company's sales have grown from $250,000 ten years ago to $9,000,000 wholesale due to its educational program.

Hazleton Laboratories Opens Western Division

Hazleton Laboratories, Falls Church, Va., independent biological research laboratory, recently opened its Western Division in Palo Alto, California.

Titan Chemical Industries Holds Aerosol Open House

The first invited public inspection of the Colorado Springs facilities of Titan Chemical Industries' Aerosol Division took place recently with guests from the Rocky Mountain region on hand to witness the formal opening of this company's entry into the aerosol industry. Since June 1957, the company has been installing aerosol filling lines, building an inventory of raw materials, etc. These developments were all evidenced either by colorful displays or pointed out on the guided tours that the guests took throughout the plant.

Plant Maintenance Conference Announces Revised Program

The Plant Maintenance Conference in Chicago next January has revised its program to meet changing needs of the industry. Water and air pollution, electric power costs, labor relations, and automation are among the new topics scheduled. The show is expected to be the largest in its nine year history.

ESSENTIAL OILS • **AROMATIC CHEMICALS** • **PERFUME SPECIALTIES**

ESSENTIAL OILS	AROMATIC CHEMICALS		PERFUME SPECIALTIES
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* **Jasmin de Provence B**	Jasmin Fleurs D	Jonquille Isoflor	Lilas Isoflor B
Muguet Isoflor A	Rose d'Orient #1	Tuberose Isoflor	Violette de Provence

*** Jasmin de Provence B**
This low priced, purely synthetic oil, reproducing the true perfume of Jasmin, has been an outstanding specialty for more than 30 years. Universally used in conjunction with or in replacement of Jasmin Absolute.

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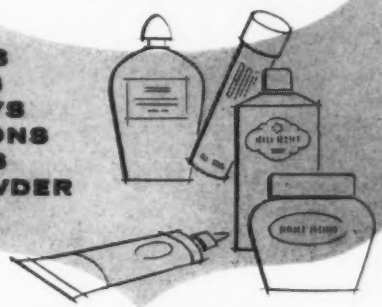
Here are three chemicals used as the active ingredient in all types of anti-perspirant products.

CREAMS
STICKS
SPRAYS
LOTIONS
GELS
POWDER



1 CHLORHYDROL
(aluminum chlorhydroxide complex)
For Cream, Lotion, Powder and Spray preparations—Available in 5 forms: Granular, fine, medium, impalpable, 50% W/W solution.

2 CHLORHYDROL S-5
(aluminum chlorhydroxide complex—modified)
For Gel preparations—In solid form for alcohol type... grease and gum free gels.

3 CHLORACEL
(sodium aluminum chlorhydroxy lactate complex)
For Cologne-Stick preparations—Available as a 40% W/W solution for making cologne sticks.

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Reheis anti-perspirant chemicals offer *all* these advantages:

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- **fine deodorant qualities**
- **non-destructive to fabrics**
- **non-irritating to skin**
- **no buffering required**

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• **TESTING**

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PERSONALITIES

Robert F. Miller has been promoted to manager of the New York branch of the Glass Container Division, Owens-Illinois Glass Co., according to a recent

Robert F. Miller

announcement by Sidney F. Davis. Mr. Miller joined Owens-Illinois in 1941 as a prescription ware specialist in the Boston sales office. He was promoted earlier this year to assistant sales manager for the drug and chemical industries.

John D. Czarnecki has been appointed manager of research-plastics for the Bradley Container Corp. and the Pittsburgh Plastics Co. according to a recent announcement by Leonard A. Britzke, president of the two American Can Co. subsidiaries. Mr. Czarnecki has been active in Canco research activities for the past 14 years and, until his recent appointment, was a research associate at the firm's Research Center in Barrington, Ill.

Ross Whitman

Ross Whitman, formerly vice president of Chemical Operations for Rayette, Inc., has joined The Kendall Co., Boston, Mass. He has been appointed director of research of the Kendall Mills Division and assumed his new duties in late October.

Roy E. Slipiec has recently been named midwest sales representative of Geigy Industrial Chemicals, Division of the Geigy Chemical Corp., Ardsley,

Roy E. Slipiec

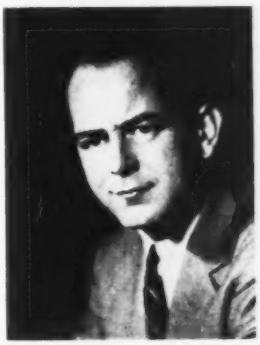
N. Y. His sales headquarters are located at 629 West Washington Boulevard, Chicago, Ill. Mr. Slipiec attended Wright Jr. College, the University of Illinois and Roosevelt University of which he is a graduate. He is a veteran of World War II during which he served with the Army Medical Corps in the South Pacific.

A. Hicks Lawrence, Jr., has been named manager of aerosol propellent sales for the Du Pont Co.'s "Freon" Products Division. A graduate of Yale University's engineering school, Mr. Lawrence has been manager of the specialty products section since 1954. He joined the Du Pont Co. as an analytical chemist at its Jackson Laboratory in 1940 and from 1941 to 1949 held various supervisory positions in plants of the company's explosives and organic chemicals departments.

William O'Brien, vice president of Finance of Shulton, Inc., has been named manager of the firm's Fine Chemicals Division in addition to his responsibilities for the over-all guidance of the company's financial affairs. He succeeds Richard Brainard who will assume responsibility for the company's real estate and business acquisition program. Mr. O'Brien joined Shulton in 1953 as assistant controller.

Herbert G. Kainik has been appointed technical director of perfume sales for Dodge & Olcott, Inc. Mr. Kainik has been servicing manufacturers as a consultant on perfuming problems for the company for the past two years. His new duties will include a broadening of this service to include a larger segment of the industry.

William J. Houston has been appointed vice president in charge of marketing of Nuodex Products Co., a division of Heyden Newport Chemical



William J. Houston

Corp. Mr. Houston joined Nuodex in 1946 and has been general sales manager since 1955. From 1953 to 1955 he was manager of paint industry sales. Mr. Houston attended Harvard and Newark College of Engineering.

W. Rowell Chase has been elected vice president of the Soap Products Division of Procter & Gamble. In this position, he will head the division responsible for all of the company's soap and synthetic detergent operations in the United States.

Lee Rosene, mid-western regional sales manager for Max Factor & Co., has been appointed to the newly created post of Director of U.S. sales, according to a recent announcement by Davis Factor.

Lee Rosene

Mr. Rosene joined Max Factor & Co. 21 years ago, as a sales representative. In 1946, he was promoted to a divisional sales manager in the Chicago office. In 1951, he was named regional sales manager in charge of all mid-western states.

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Book Reviews

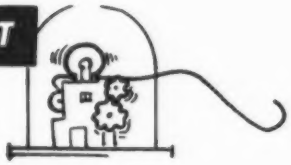
LIGHT, VEGETATION AND CHLOROPHYLL, by J. Terrien, G. Truffaut and J. Carles, translated by Madge E. Thompson. Philosophical Library, 1957. 4½ x 7 inches, illustrated and indexed.

This exposition of present day knowledge of photosynthesis and related subjects consists of a translation from the French of two works, namely: *Lumiere et vegetation*, by Jean Terrien and George Truffaut, and *L'Energie Chlorophyllienne*, by Jules Carles. The first part covers: Light and Thermal Radiations, Solar Radiation, Photometry of the Leaf, The Role of Infra-red Radiation, The Role of Ultraviolet Radiation, The Role of Visible Light, Photosynthesis, Theories of Assimilation, Photosynthesis and Photography, Phototropism, and Photoperiodism. The second part deals with the chemistry of chlorophyll and photosyntheses plus a summary of the importance of chlorophyll in the world today.

A GUIDE TO THE LITERATURE OF CHEMISTRY, Second Edition, by E. J. Crane, Austin M. Patterson and Eleanor B. Marr, John Wiley & Sons, New York, 1957. 397 pages, 6 x 9 inches. Indexed.

An invaluable classified compilation of literature of Chemistry. Separate chapters cover reference books, periodicals, patents, government publications, trade literature, with Chapter 7 including Addresses, biographies, bibliographies, committee work, lectures, motion pictures, museum collections, organizations, other sciences, personal correspondence, reviews, scientific meetings, theses, and unpublished material. Chapter 8 includes author and subject indexes, empirical-formula and patent number indexes, punched-card and the indexes of the chemical abstract journals, as well as independent indexes. Chapter 9 covers American libraries and Foreign Chemical Libraries, with chapter 10 dealing with Procedure of Literature Searches. A seven part Appendix lists literature relating to chemical literature, symbols, libraries, periodicals, scientific and technical organizations, discontinued periodicals, and dealers and publishers. A very well organized edition.

MARKET REPORT



Year-End Buying Anticipated

While declines in ionones, linalool, geraniols and several of the oils carried the general trend of the market downward over the past month, an undercurrent of optimism prevailed regarding November sales. Resumption of activity since the Labor Day holiday has proved rather disappointing. Many consumers have been content to drift along on current inventories. However, the approaching year-end holiday season together with depleted consumer inventories should result in a last minute rush for anticipated needs.

PRICE CHANGES

	Current	Previous
Advances		
Oil cumin	$ 11.00	$ 7.10
Oil cardamom	45.00	41.00
Oil lemon, Italian	7.50	5.75
Declines		
Oil lavandin	$ 1.75	$ 2.00
Coconut oil, double dist.	0.19	0.21½
Castor oil, No. 1, tks	0.23	9.23½
Geraniol		
Standard	2.90	3.10
Soap grade	1.85	2.00
Geranyl butyrate	5.40	6.15
Geranyl propionate	5.55	5.85
Geranyl formate	5.45	6.00
Linalool, bois de rose	5.35	5.50
Linalyl acetate	5.35	5.50
Methyl heptenone	5.80	6.10
Ionones		
Methyl	4.55	4.75
Alpha, extra	4.95	5.15
Beta	4.95	5.15
Nerol, lb	10.60	11.00
Hydroxy citronellol	5.25	5.45
Oil patchouli	5.50	6.00
Copra, coast, ton	160.00	165.50

(Prices per pound unless otherwise specified)

LAVANDIN, LAVENDER OILS SOFT—

Spot prices for lavandin were reduced by 25 cents per pound. New and lower prices for spot goods ranged from $1.75 to $2 per pound. Prices for lavender oil likewise lost some ground, but dealers are looking forward to a more pronounced pickup in sales which in turn should serve to check the downward price trend.

SUPPLY SQUEEZE LOOMS IN VANILLA—

No further arrivals of vanilla beans of any great size can be expected until March, advices from Madagascar state. Stocks of beans from the 1956-57 crop are virtually exhausted. Those in the hands of local dealers are low, and a demand of any great proportion could create a real squeeze in supply between now and early next year. While it is still rather early, it is generally believed that when figures are completed this year's imports of vanilla beans will amount to approximately 1,200,000 pounds or about the same as those for 1956. Because of an extensive research program in the vanilla bean industry, it is understood that a practical way has been found to determine the quality of various extracts on the market with an aim to establish certain standards in the industry.

CUMIN SCORES SHARP RISE—

A development of interest in the group of seed and spice oils was a sharp advance in oil cumin. Quotations were moved up to a minimum of $11 per pound in contrast to $7.10 per pound previously in effect. The oil is reported in a tight supply position here with prices sharply higher on replacements from primary centers.

BREAK IN REFINED GLYCERIN SEEN—

While all efforts are being made to maintain prices on the part of major refiners, a turn in the overall statistical position of the market suggests an early break in selling schedules. An unexpected rise in stocks in August to the 71 million-pound level; increasing pressure of offerings of foreign crude material in this market; and a reduced demand over the past month in contrast to September volume all tend to make for a generally soft tone in the market with a possible break in prices.

CITRATES ACTIVE—

Demand for citrates was brisk with the turnover in both sodium citrates and citric acid running into sufficient volume as to create a general tone of firmness. Takings of acid for the account of the beverage trade showed signs of falling off but the decline is only expected to prove temporary. Seasonal influences should tend to stimulate demands for both the soda as well as the acid in the food industry.

ROSINS FIRMING—

Following a persistent downward trend in prices for many months prices turned firmer toward the close of last month with the pale grades, water white and windown glass, registering slight advances. Export demand has been running at very low level because of highly competitive conditions in the world market. The gum industry is going into its non-producing season and domestic consumer inventories are believed to be low.

OIL CARDAMOM HIGHER—

Increases of $4 to $7 per pound featured the market for oil cardamom. New prices range from $45 to $52 according to quantity. The oil enjoys a reasonably good demand here for flavoring. The sharp rise in prices was caused by a gradual shrinkage in the yield of oil from the seed. The yield, according to reports, has been running from four and a half to five percent below normal. Virtually no replacements are expected from India until late this month or December.

TONE IMPROVES IN MINT OILS—

A better tone prevails in mint oils. Contract purchases for the account of some of the larger users served to have a steadying influence on prices. Crops of both spearmint and peppermint this year were similar in size to those of last year's high record. However, a factor which can be attributed to the exceedingly favorable outlook for the longer term period is that consumption of mint oils has likewise been increasing.

FORMOSAN CITRONELLA SUPPLY AMPLE—

An expected reversal in the downward price trend has thus far failed to take place despite the fact that the market is at a much lower level than it was earlier this year. Spot prices ranging from 95 cents to $1.10 per pound have been subject to shading. Recent advices from the primary center indicated that there were good quantities of oil available for immediate shipment with very little demand.

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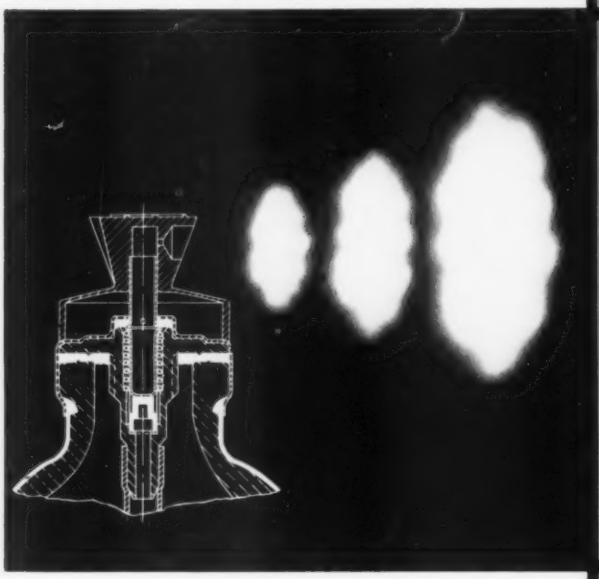

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